

# **EVALUATION OF IN-SERVICE TEACHER TRAINING PROGRAMMES OF SCERT, ORISSA**

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**RIE, Bhubaneswar**  
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## **PREFACE**

Within the overall frame work of teacher education programme in-service teacher education has a significant role. It is not only a cliché but a reality that those who teach should never cease to learn. Teaching acquires new colour if the teacher continues to learn. Teachers need to update & enrich their knowledge, skills & competencies from time to time. While pre- service teacher education implies the initial empowerment & enlightenment stage of professional transformation in- service education has its relevance because, of the need for further empowerment & re-empowerment as a consequence of changes in the school system. In the schools there are additions in the content areas also in terms of innovations, approaches, methodologies & techniques. These need to be acquainted with & later on internalized. Therefore the National Policy on Education (NPE, 1986) has rightly observed that "Teacher education is a continuous process & its pre-service & in-service components are inseparable.

Realizing the importance of in-service education as a strategy to up grade professional capabilities of teachers comprehensive teacher training programmes have been under taken both at national & state levels. The Directorate of Teacher Education & State Council of Educational Research & Training (TE & SCERT), Orissa is engaged in organizing various types of need based in-service teacher training programmes directly & indirectly through its Teacher Education Institutions (TEIs). Recently, it has identified hardspots of secondary teachers of Orissa in English, geography, physical science & mathematics. Based on these hardspots & action plans developed by SCERT its constituent TEIs have been organizing content enrichment programmes in these four subjects since 2002. Such programmes need to be evaluated for determining its success or failure & results of evaluation should be available for providing necessary feedback for designing & implementing future programmes. With this background this programme was undertaken by Regional Institute of Education as a request programme of Govt. of Orissa.

The report outlines the present practice of in-service teacher training programmes in the state of Orissa. Field data on various aspects of above teacher training were collected from TEIs, analyzed qualitatively & quantitatively & it is hoped that the findings will provide necessary feedback for policy makers & practioners.



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# CHAPTER – I

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## INTRODUCTION

### **Background**

The growth and development of a country depends mainly upon the quality of its human resource along with other social, economic and scientific factors. Education plays a significant role in developing human resource capable of meeting the challenges of fast changing world. Teacher's performance constitutes the most crucial input in the field of education. Teachers need to update and enrich their knowledge, skills and competencies from time to time. While these attributes can be initially developed among teachers through pre-service education programmes, the in-service training programmes are needed to reinforce their skills and to update their knowledge of content. The National Policy of Education (NPE, 1986) rightly observed that teachers' education is a continuous process and its pre-service and in-service components are inseparable.

Realizing the importance of in-service education as a strategy to upgrade professional capabilities of teachers, endeavors were made immediately after attainment of independence to institutionalize teachers' continuing education. Extension service departments were established in about 100 teachers training colleges for providing refresher training to teachers. During the Sixth Five Year Plan, centers for continuing education of teachers were established in different parts of the country. In-service education of teachers got further impetus and momentum with the implementation of National Policy on Education 1986. To concretize the vision of the NPE, a centrally sponsored scheme of restructuring and strengthening of teachers' education was implemented during the Seventh and Eighth Five Year Plans. This scheme proposed the setting up of one District Institute of Education and Training (DIET) in each district, 200 Colleges of Teachers Education (CTEs) and 50 Institutes of Advanced Study in Education (IASEs). All these institutes have to organize both pre-service and in-service education for teachers. Implementation of the scheme has helped in the creation of a training network in the country. The network has been extended downward to the block level by establishing block resource centers at the sub district level. At the national level, institutions like NCERT, NCIT, NIEPA, etc., also have the mandate to provide academic resource support to the institutions comprising the training network at the

State and District Levels. Similarly, SCERTs also have mandate to serve school education from pre-primary to senior secondary stage.

Keeping in view the size of India Education System (which at present is having about fifty lakh school teachers) routine in-service education programmes are inadequate and only massive programmes of in-service education may be helpful in dissemination of the emerging concerns and new developments in the field of education. As such in the wake of implementation of NPE 1986, a centrally sponsored Programme of Mass Orientation of School Teachers (PMOST) was launched to provide in-service education to teachers. The focus of PMOST was to sensitise the teachers both primary and secondary, to various policy perspectives and also to develop to some extent expertise in various pedagogical methods and content areas.

The Special Orientation Programme for Primary Teachers (SOPT) launched in 1993-94, was devised on the basis of the experiences gained in PMOST. This programme which has continued during the Ninth Five Year Plan, aims at imparting training to teachers in the use of Minimum Levels of Learning (M.L.S) approach, child-centred approach and Operation Blackboard (OB) materials. More than 14 lakh teachers have undergone in-service training under the scheme by the end of March 2000.

Though a comprehensive network for the training of teachers is in the process of being established in the country, a substantial number of institutions comprising the network cater to the training needs of elementary school teachers only. Most of the SCERTs and DIETs work in the area of elementary education in particular. The CTEs and IASEs set up under the centrally sponsored scheme of strengthening and restructuring of teacher education have the mandate to organize in-service education and training for secondary school teachers, teacher educators and field functionaries. A number of these institutes have been established but they are not adequately prepared to undertake the responsibility of organizing in-service education of elementary, secondary and senior secondary school teachers. Similarly, it is important to train all teacher educators as resource persons and key resource persons to cater to the in-service training needs of elementary, secondary and senior secondary school levels and field functionaries. No central scheme like SOPT has been implemented for the upper primary, secondary and senior secondary stages of education while it is a felt need in the State for the professional development of teachers. However, in some of the States SCERTs impart in-service education to upper primary and secondary schools on a limited scale. Some



of the State Boards of Secondary Education also organized in-service training programmes for the teachers of secondary and senior secondary stage. The Central agencies like Kendriya Vidyalaya Sangathan and Navodaya Vidyalaya Samiti have established some sort of institutional mechanism for providing in-service training to their teachers. The training is mainly organized in the identified difficult content areas of curriculum with the objectives of enhancing teachers' competence in subject areas. For teachers employed in the states, the scheme of in-service education is essential for qualitative improvement of education.

The Government of India, while recently approving the continuance of centrally sponsored scheme, 'Restructuring and Reorganization of Teacher Education' during Ninth Five Year Plan, has decided that the scope of Special Orientation Programme for Teachers be widened and the State Agencies should be provided flexibility to decide the training content and develop training materials to meet their specific needs for in-service training of teachers and field functionaries at the different stages of school education.

The successful implementation of the centrally sponsored scheme of Special Orientation Programme for Primary Teachers generated the demand that the in-service training of teachers may be extended to the upper primary, secondary and senior secondary stages of education. The training of upper primary, secondary and senior secondary teachers shall have to be subject specific and may be designed and implemented by the SCERTs as nodal agencies. Though some sporadic efforts have been made to provide in-service training to the teachers of secondary stage yet most of the teachers of secondary stage do not get an opportunity on a regular basis to up date their knowledge and enhance their pedagogical skills. However, systematic in-service training for the professional development of secondary school teachers will be helpful not only in updating their knowledge of contents and sharpening their skills but will ultimately lead to the better performance of the students in the public examinations.

The Union Government can play a catalytic role by supporting academically through its institutions the schemes of in-service training developed by the States agencies. However, it would be appropriate if the schemes of in-service training are developed on a continuing basis. To ensure that the scheme is implemented effectively it would be necessary to plan, design and implement in-service education of teachers and functionaries with the broad objectives laid down by various central institutions. The Curriculum Framework for Quality Teacher Education stated the objectives of in-service teacher education as under :-

## **General Objectives of In-service Teacher Education**

- Upgrade the professional competence of serving teachers,
- Upgrade the professional qualifications of under-qualified and/or untrained on-the-job teachers;
- Prepare teachers for the new roles;
- Provide knowledge and skills relating to emerging curricular changes-content, process and evaluation;
- Make teachers aware of critical areas and issues, like, competency-based learning, multi-grade, multi-level and multi-channel teaching, teaching students for the disadvantaged groups, meeting educational needs of children with learning problems, developing inquiry skills, use of mass media and information technology in education, community participation, and
- Overcome gaps and deficiencies of pre-service education.

However, the specific objectives of the in-service training at different stages are delineated as under :-

## **Specific Objectives of In-service Teacher Training At Different Stages:**

### **Primary Stage :**

1. To sensitize teachers to the recent developments in the policies, content and methodology of primary education.
2. To equip the teachers to make use of activity-based and child-centered approaches to teaching and learning process.
3. To enable the teachers to use appropriate strategies to equip children for the attainment of Minimum Levels of Learning (M.L.S)
4. To equip the teachers to handle hard-spots in the curriculum more effectively
5. To enable teachers to organize remedial teaching and enrichment programmes to cater the needs of variety of learners.
6. To promote innovations, research and experimentation in schools.
7. To equip the teachers to make use of locally available materials for making teaching-learning effective.
8. To enable teachers to make use of modern technological aids including information technology for effective teaching-learning process.
9. To equip the teachers to mobilize community support for the institution.

### **Upper Primary Stage :**

1. To sensitize the teachers to the recent developments in the policies, issues, content and methodology of upper primary stage of education.
2. To enable the teachers to make use of locally available materials and local environment to make teaching-learning effective.
3. To upgrade the teachers' knowledge in the content areas.
4. To sharpen teachers' professional skills of teaching specific subjects.
5. To equip teachers to handle hard-spots in the curriculum more effectively
6. To promote innovations, research and experimentation in schools.
7. To enable teachers to organize remedial teaching and enrichment programmes to cater the needs of variety of learners.
8. To enable teachers to make use of modern technological aids including information technology for effective teaching-learning process.
9. To equip the teachers to mobilize community, resources and support for the institution.

### **Secondary And Senior Secondary Stage :**

1. To enable teachers to reflect on problems and changing policies and priorities of school education in general and secondary education in particular.
2. To upgrade and update teachers' knowledge in their subjects of specialization.
3. To sharpen teachers' professional skills, especially in the teaching of their subjects.
4. To enable teachers to analyze students' performance, especially in areas of curriculum perceived difficult and to devise appropriate strategies for removal of deficiencies
5. To promote innovations, research and experimentation in schools.
6. To equip teachers to use local environment and locally available materials to make teaching relevant, effective and interesting.
7. To enable teachers to make use of modern technological aids including information technology for effective teaching-learning process.
8. To equip teachers to mobilize community resources and support for the institution
9. To sensitize the teachers to provide educational guidance.

The specific objectives laid down above are suggestive and can be modified by the states as per their needs, requirement and priorities of elementary, secondary and senior secondary stage of education.

### **In-service Teacher Training Programmes of TE & SCERT, Orissa**

Teacher Education & State Council of Educational Research & Training (TE & SCERT), Orissa is engaged in organizing in-service teacher training programmes directly & indirectly through its constituent Teacher Education Institutions (TEIs) for enhancing professional competencies of teachers. Recently, it has identified specific hard-spots of secondary school teachers in certain subjects namely English, Geography, Physical Science & Mathematics & developed guidelines for conducting Special Orientation Programme for Teachers (SOPT) at the secondary level, the details of which are given below:

### **Guidelines for Conducting Special Orientation Programme for Teachers (SOPT) at the Secondary Level for the Sessions 2002 – 2003**

#### **Focus**

Content enrichment programme for secondary school teachers in subjects like English, Geography, Physical Science & Mathematics.

#### **Target Audience**

All the teachers, teaching above subjects and working in government, aided and unaided recognized high schools at the State, including high schools managed by Welfare Department and Mission Authorities

#### **Duration**

The duration of each programme in respect of each subject to be organized is of seven days. The session plan designed for the purpose in the concerned subject need to be strictly followed

### Catchment of Teacher Education Institutions (TEIs)

Sl. No.	Name of TEIs	Revenue Districts allotted
1.	RNIASI, Cuttack	Cuttack, Jagatsinghpur, Jajpur and Kendrapara
2.	DPIASI, Berhampur	Ganjam (Except Bhanjanagar Division) Gajapati and Rayagada
3.	Dr. PMIASI, Sambalpur	Sambalpur, Jharsuguda, Baragarh and Deogarh
4.	NDW CTE, Bhubaneswar	Puri, Khurda and Nayagarh
5.	CTE, Angul	Dhenkanal and Angul
6.	CTE, Balasore	Balasore and Bhadrak
7.	CTE, Balangir	Balangir, Sonepur and Nuapada
8.	DAV CTE, Koraput	Koraput, Malkangiri and Nawarangpur
9.	CTE, Bhanjanagar	Kandhamal, Boudh and Bhanjanagar sub-division of Ganjam district
10.	RCET, Rourkela	Sundargarh
11.	UG B.Ed. College, Baripada	Mayurbhanj
12.	KTC, Bhawanipatna	Kalahandi
13.	AATC, Fakirpur	Keonjhar

### Resource Persons

Faculty members of Teacher Education Institutions (TEIs) such as Training Colleges, CTEs and IASI's having content background in the respective school subjects shall act as resource persons in the training programme. In case of non-availability of adequate number of resource persons in the relevant subjects, outside resource persons such as retired persons, teachers working in nearby degree colleges may be invited to act as resource persons in the concerned training programme.

Each TEI is required to prepare a consolidated list of potential resource persons subject-wise from the allotted districts so as to utilize their services in the teacher training programmes.

Each resource person is required to submit a brief write-up of his / her content presentation in a particular session. Payment of honorarium is subject to submission of the write-up. All the write-ups thus collected need to be consolidated at the level of TEIs programme-wise and be submitted to this Directorate after completion of each programme.

Although four resource persons are required to be engaged per day for seven days, the total 28 sessions may suitably be assigned to both internal and external resource persons in a manner that no resource person should take more than two sessions per day and honorarium may be paid accordingly. The mode of presentation shall be made participatory and interactive.

### **Training Venue**

The training programme is to be organized both at the Institution as well as the field level. At least 50% of the total number of programmes planned for the year need to be organized at the field level

### **Nature of the Training Programme**

Non-residential both at the Institution and field level

### **Intake per Programme**

50 (fifty) secondary school teachers of the concerned subject area.

No programme should be conducted if the number of participations reported at the venue is less than 30.

Each TIE must ensure that all the 50 (fifty) teachers invited to a SOP1 programme actually participate in the programme. Teachers coming on the second day of programme should not be allowed to join the course. Similarly, teachers attending SOP1 programme should not be permitted to leave the programme in between except in case of any exigency

### **Liaisoning with the Inspector of Schools**

Each TIE is required to keep a good liaison with the concerned Inspector of Schools for deputation of teachers to the training programme as per the programme schedule.

### **Database of Secondary Teachers**

Each TIEs has to keep an updated database of teachers subject-wise working in government, aided and unaided recognized high schools under the School and Mass Education Department and the Welfare Department of the concerned districts for teacher programme.

### **Change in the Training Schedule**

Dates already finalized for conducting SCPT should not ordinarily be shifted to any other dates. Dates and venue, if changed, shall be intimated to the Directorate of TE & SCERT immediately. A copy of the training schedule may be extended to RIE, Bhubaneswar a constituent unit of NCERT.

### **Monitoring and Evaluation**

Each training programme has to be monitored and evaluated. Pre-test and post-test shall be conducted and the result of analysis of the exercise may be communicated to this Directorate for taking corrective measures.

Each programme needs to be monitored by the Principal of the TEI concerned. Besides, officers of the DTE and SCERT, faculty member of NCERT are being requested to monitor the programme at the institution and field level. TEIs are, therefore, requested to extend all possible cooperation to such officers in discharging their responsibilities.

### **Documentation**

Documentation in respect of programmes conducted by the TEIs may be prepared annually and be submitted to this Directorate in duplicate.

### **Monthly and Quarterly Progress Report**

Monthly and Quarterly Progress Reports (QPR) in respect of SCPT programme conducted by each TEIs in the prescribed format must be forwarded to the DTE and SCERT at the end of each month and quarter positively for onward transmission to the NCERT, New Delhi. Along with the QPR, the Principals are to enclose a consolidated Monitoring Report.

### **Utilization Certificate**

Utilization Certificate in the prescribed format in respect of the programmes conducted by the respective TEIs shall be prepared programme-wise and be furnished to the Directorate of TE & SCERT in the first week of the subsequent quarter positively.

## Norms of Expenditure

No. of Days : 07      Resource Persons : 04  
 Course Director : 01      Teachers : 50  
 Nature of Training Programme : Non-residential      Venue : Institution level

Sl. No.	Items	Fixed Norms	Total cost per programme in Rs.	Remarks
1.	TA to External Resource Persons	Rs. 300 (approx.)	2000.00	This is subject to actuals as per State Government.
2.	DA for External Resource Persons	Rs. 50.00 per day per person (approx.)	1400.00	
3.	Honorarium to Course Director	Rs. 300.00 per programme	300.00	In case of more than one programme being conducted simultaneously the Course Director is entitled to get one honorarium.
4.	Honorarium to Resource Persons	Rs. 100.00 per day per person	2800.00	
5.	TA to 50 teachers	Rs. 150.00 per person	7500.00	Actuals as per State Government Norms.
6.	DA to 50 teachers	Rs. 45.00 per teacher per day (approx.)	20250.00	
7.	Stationeries (Pad, Dot, Folder etc.)	Rs. 20.00 per person	1110.00	For 55 persons.
8.	Payment to one Sweeper, one Peon-cum-Water man	Rs. 40.00 per day per person (40x2x7)	560.00	For 2 persons.
9.	Honorarium to one clerk	Rs. 150.00	150.00	-
10.	Course Material	Rs. 1500.00	1500.00	This is subject to actuals
11.	Tea and Refreshment	Rs. 05.00 per day per person	2100.00	For 60 persons.
12.	Working Lunch	Rs. 20.00 per participant per day	7700.00	For 55 persons.
<b>Total</b>			<b>47,370.00</b>	

Norms of expenditure fixed up by this Directorate and SCERT (field and institution level) need to be strictly adhered to.

## Maintenance of Accounts

A separate Savings Bank Account for SOPI funds may be opened in the name of the Principal, HEI concerned in the nearest Nationalized Bank for smooth transaction.

A separate Cash Book may be maintained for SOPI Programme.

All the vouchers in respect of the expenditure actually incurred in the SOPI programme are to be retained by the Teacher Education Institutions concerned for Audit purposes.

Acknowledgement receipt in respect of SOPI funds received by the HEI concerned may be sent back to the Directorate in the prescribed format



The list of hard-spots (Appendix-A) a seven-day session plan (Appendix– B) & above guidelines were sent by SCERT, Orissa to its constituent TEIs i.e. IASE, CTE & Training Colleges for conducting SOPT at the secondary level.

### **Need of the Study**

As per the list of hard-spots, session plan and guidelines TEIs have been organizing SOPT in English, Geography, Physical Science & Mathematics for their respective districts since 2002. Such programmes need to be evaluated for determining its success or failure & results of evaluation should be available for providing necessary feedback for planning & organizing future programmes in a better manner. With this background, the programme was undertaken by Regional Institute of Education (RIE), Bhubaneswar as a request programme of Orissa State Government with following objectives:

### **Objectives of the Study :**

- To evaluate the effectiveness of in-service teacher training programmes of SCERT, Orissa on the basis of the following criteria :
  - a) Need & relevance of the programme.
  - b) Objectives, resources & duration.
  - c) Participants and resource persons.
  - d) Training in-puts (content of training, training modules/materials and transactional mode)
  - e) Monitoring & evaluation of the programme.
  - f) Follow-up action.
  - g) Use of training in-puts in future.
- To suggest appropriate changes that are needed for improving future in-service teacher training programmes.

## CHAPTER – II

### METHODOLOGY

#### Sample

As per the decision of TE & SCERT, Orissa content enrichment programmes for secondary school teachers in English, Geography, Physical Science & Mathematics were organized by secondary level Teacher Education Institutions (TEIs) under SCPT. Table – I represents the sample TEIs who had organized such training programmes

**Table – 1**

Content Enrichment Training Programmes for Secondary School Teachers organized by Teachers Education Institutions (TEIs) of Orissa

Sl. No.	Name & Address of TEIs	Subject of Training	Duration	Training Centre
1	DPIAST, Berhampur	Mathematics	3 – 9 Sept, 02	DPIAST, Berhampur
	DPIAST, Berhampur	English	3 – 9 Sept, 02	DPIAST, Berhampur
2	KSUBCTE, Bhanjanagar	Physical Science	6 – 9 Sept, 02	KSUBCTE, Bhanjanagar
	KSUBCTE, Bhanjanagar	Geography	24-30 Sept, 02	KSUBCTE, Bhanjanagar
3	AATC, Fakirpur, Keonjhar	English	13-19, Sept, 02	AATC, Fakirpur
4	NWCTE, Bhubaneswar	Physical Science	21-27 Sept, 02	NWCTE, Bhubaneswar
	Do	Geography	23-29 Sept, 02	Do
	Do	Mathematics	3 – 9 Sept, 02	Do
	Do	English	Do	Secondary Training School Pipli
5	Govt. U.G. B.Ed. College, Baripada	Mathematics	30.09.02 – 6.10.02	Govt. U.G. B.Ed. College, Baripada
6	RNIASE, Cuttack	Geography	21-27 Nov, 02	RNIASE, Cuttack

7	RCTI, Rourkela	Geography	12-18, Nov, 03	Rastuya Vidyalaya, Rajgangpur
	Do	Mathematics	14-20, Nov, 03	RCTI, Rourkela
	Do	Physical Science	13-19, Jan, 04	RCTI, Rourkela
8	DAV CIE, Koraput	English	18-24, Nov, 03	Saraswati Vidya Mandir, Damangudi
	Do	Physical Science	24-30, Nov, 03	Do
9	KSUBCET, Bhanjanagar	Mathematics	18-24, Nov, 03	KSUBCET, Bhanjanagar
	Do	English	5-11, Dec, 03	Do
10	Dr. PMIASL, Sambalpur	Geography	23-29, Dec, 03	Govt. High School, Sohela, Baragarh

### Tool

Keeping in view the criteria indicated in the objectives of the study evaluation tool / proforma (Appendix – C) was developed in a 3 – day workshop involving 5 external & 6 internal experts (Appendix – D)

### Collection of Data

The programme coordinator & other faculty members of Regional Institute of Education (RIE), Bhubaneswar visited the training centers during the programme & collected data through observation, discussion with programme director / Co-ordinator, resource person & participating teachers

### Analysis of Data

Data were analysed following qualitative approach and percentage.

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## CHAPTER – III

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### ANALYSIS OF DATA

Data collected from the training centers were analysed & reported below as per the criteria indicated in the objectives of the study

#### **Need & relevance of the programme**

87% of teachers expressed that content – enrichment programme in their respective subject was planned & organized on the basis of their hard-spots. In the context of curricular changes, this type of training was really need-based & relevant to clarify their doubts & will enable them to deliver goods more effectively in the classroom. However, some teachers of different subjects suggested that following new areas / topics may be included which are equally important for them

<u>Subject</u>	<u>Areas / Topics to be included or need more sessions</u>
English	- Phonetics, linguistics, dialogue writing, questioning skill, recent trends in teaching English with demonstration. More sessions may be given for reading, writing, grammar, textual topics & critical appreciation of poetry.
Geography	- Oceanic currents, land forms, volcano, land shapes, pressure belts, movement of wind, layers of atmosphere, earth-quake, rocks, physical features of different continents, & demonstration lessons. More sessions may be given for longitude, latitude & less sessions for graphs
Physical Science	- Wave motion, wave front, telescope, microscope, petro chemicals, electrolysis, alcohol aldehyde & ketone groups
Mathematics	- Antilogarithm, set, computer application, height & distance application & uses of mathematics, demonstration class for slow learners. More sessions may be given for use of computer, marking to grading

## **Objectives, resources & duration**

As per the guidelines of SOPT prepared by the Directorate of TE & SCERT, Orissa, the objectives of the programme were to orient secondary school teachers in the subjects like English, geography, physical science & mathematics for their content enrichment. With focus group discussion with the participating teachers, 83% of teachers indicated that objectives were relevant. But some essential pedagogical dimensions like methods of teaching particularly for slow learners/under achievers, diagnosis of their learning difficulties, remedial teaching & techniques of evaluation could have been included to address the day-to-day classroom problems.

In order to ensure the achievement of training objectives it would be desirable to have essential physical & human resources at the training centers. Since SOPT were organized in TEIs and other centers i.e. in some outside schools, it was observed that facilities like OHP, slide projector, computer, xerox machine, laboratories & audio-visual aids were not available in some of the training centers for effective organization of the programme. But training centers had other physical facilities & arranged boarding & lodging facilities for outside participants. It was also observed that some of TEIs had no faculty or had one faculty in a particular area & therefore it was really difficult to handle both pre-service & in-service programmes simultaneously. So far as geography was concerned, most of the teacher educators of TEIs teaching geography method do not have subject background at the college level & this was another problem in conducting content enrichment programme in geography.

85% of teachers pointed that all the topics were covered as per the programme schedule but more sessions were necessary for some topics. Therefore it was suggested that duration of training programme may be at least 10 days.

## **Training inputs**

Although it is essential to develop need based training materials / modules and provide the same to in-service teachers for clarifying their doubts but SCERT could not produce any training materials / Teaching-Learning Materials (TLM) for the participants. It was further observed that very few resource persons submitted their write-ups to the course director which were not prepared as per the hard-spots. It is common experience that in the vast majority of our schools text book meant for children are the only reading-cum-reference material available to teachers. A majority of teachers prefer to confine their classroom

presentation to the knowledge & information available in students' textbook. Therefore it was highly desirable to provide required enrichment training materials to teachers for better comprehension through discussion or self study.

So far as transactional mode of training was concerned, most of the resource persons were following lecture & discussion method. Provision of practical / group work were insignificant particularly in science, geography & mathematics. There was demonstration class, field work & mathematics teachers were not exposed to computer in some centers.

### Participants & resource persons

On analysis of data, participation of teachers in SOPT in different subjects are given in Table – 2.

**Table – 2**

Participation of Teachers in SOPT in English, Geography, Physical Science & Mathematics

Sl. no.	Name of organizing TEIs	Subject	No invited	No participated	Percentage of participation
1	DPIASE, Berhampur	English	75	46	50.25
2	AATC, Fakirpur	English	50	36	
3	NWCTE, Bhubaneswar	English	60	28	
4	DAVCTE, Koraput	English	50	28	
5	KSUBCTE, Bhanjanagar	English	85	30	
1	KSUB, Bhanjanagar	Geography	58	38	57.87
2	NWCTE, Bhubaneswar	Geography	55	31	
3	RNIASE, Cuttack	Geography	50	30	
4	RCET, Rourkela	Geography	50	24	
5	Dr. PMIASE, Sambalpur	Geography	60	35	
1	KSUBCTE, Bhanjanagar	Physical Science	75	34	41.03
2	NWCTE, Bhubaneswar	Physical Science	55	26	
3	DAVCTE, Koraput	Physical Science	60	23	
4	RCET, Rourkela	Physical Science	61	20	

1	DPIASEL, Berhampur	Mathematics	75	34	4051
2	Govt. U G B I d College, Baripada	Mathematics	55	47	
3	NWCET, Bhubaneswar	Mathematics	60	29	
4	RCEET, Rourkela	Mathematics	52	21	
5	KSUB CETE, Bhanjanagar	Mathematics	69	23	

From Table-2, it was found that participation of teachers in different subjects was not satisfactory. The course director prepared the list of in-service teachers subject-wise in consultation with the concerned Inspector of schools / District Welfare Officers & communicated them to attend the programme as per the schedule with copies to their controlling authorities. But it was ascertained from the course directors & participating teachers that low attendance was due to involvement of teachers in various types of work like examination, evaluation work of the school or Board or earlier participation of similar programmes. Further, due to lack of required number of subject teachers in many schools the concerned head of the institution could not relieve the teachers. Another problem was also linked to this. Since there was no budget provision for postal expenses in SOP1, the course director could not send reminders to all selected teachers. However, 71% of participants suggested that training programme may be conducted preferably during holidays or vacations so that more teachers may participate.

As per guidelines of SOP1, 4-resource persons including the internals with content background may be involved for each subject. Accordingly, course directors utilized the services of internal faculty members, retired teachers, and college teachers. Since the honorarium was only one hundred rupees per day per person it was observed that many external resource persons were not very keen for taking classes & also not submitting brief write-up of their presentation. Further in some places resource persons were not available timely when the programmes were organized outside the TIEs. So far as internal resource persons were concerned many TIEs had not required number of teacher educators particularly in geography. Therefore, it was difficult for faculty members to manage simultaneously both pre-service & in-service teacher education programmes particularly when in-service programmes are organized outside. But Dr. PMIASL, Sambalpur identified a team of retired

head masters / teachers in geography & English & their services were utilized more effectively for teachers' training. However, many teachers opined that subject experts from the Board of Secondary Education (BSE), Orissa may be invited as resource persons to SOPT.

### **Monitoring & evaluation of the programme**

Monitoring & on-the-spot supervision & evaluation of the training programmes are essential for introducing mid-course corrections, if required for enhancing the effectiveness & efficacy of the programmes. It was also built in SOPT developed by SCERT, Orissa & Principals of HIs as course directors monitored & supervised the programmes with the help of internal faculty members. Due to lack of funds, officers from SCERT, Orissa were not able to visit SOPT centers for the purpose. However, faculty members of Regional Institute of Education (RIE), Bhubaneswar visited sample training centers (vide Table-1) during the programme & provided necessary feedback for improvement. Pre-tests & post-tests were conducted over teachers in their respective subjects & the mean scores of one of the centers are given below.

Subject	Maximum mark	Pre-test mean score	Post-test than score
English	60	26.29	33.16
Geography	50	21.56	34.52
Physical Science	50	34.75	40.97
Mathematics	50	18.61	39.87

Above Pre-test mean scores in different subjects may be the reflection of the level of hard-spots of teachers & the corresponding post-test scores indicate the gain which may be due to training inputs. Further it was seen except few centers, evaluation of programme was not done by the participants.

### **Use of training inputs**

The participants were asked how to use training inputs in future. All teachers univocally expressed that they will disseminate these ideas among their colleges and use it for better classroom instruction. They were also hopeful about the positive impact of training on students' learning. They also requested the experts to extend their needed support in future for effective classroom transaction.

### **Follow-up action**

It was observed that there was no provision for follow-up action in SOPT guidelines, which is essential for assessing the impact of training inputs.



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## CHAPTER – IV

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### MAJOR FINDINGS & SUGGESTIONS

#### Major Findings

On analysis of data, the major findings are summarized below

- 1      87% of teachers expressed that such types of content enrichment programmes in English, Geography, Physical Science & Mathematics were really need based & relevant for them since they were developed on the basis of their hard-spots. However, following new areas/topics may be included in the training programme

<u>Subject</u>	<u>Areas / Topics to be included or need more sessions</u>
English	- Phonetics, linguistics, dialogue writing, questioning skill, recent trends in teaching English with demonstration. More sessions may be given for reading, writing, grammar, textual topics & critical appreciation of poetry.
Geography	- Oceanic currents, land forms, land shapes, pressure belts, movement of wind, layers of atmosphere, volcano, earth-quake, rocks, physical features of different continents, & demonstration lessons. More sessions may be given for longitude, latitudes & less sessions for graphs.
Physical Science	- Wave motion, wave front, telescope, microscope, petro chemicals, electrolysis, alcohol, aldehyde & ketone groups
Mathematics	- Antilogarithm, set, computer application, height & distance application & uses of mathematics, demonstration class for slow learners. More sessions may be given for use of computers & marking to grading.

- 2      Objectives of the programme were spelt out in the guidelines. But most of the teachers indicated that some pedagogical components like methods of teaching for slow learners, diagnosis & remediation, techniques of evaluation etc. could have been included. Due to non-availability of essential facilities like OHP, computer, xerox machine, laboratory & other audio-visual aids in some of the training centers, the programmes were affected. However, majority of teachers opined that all topics were covered as per the timetable although more time was essential for some topics.

3. Training materials were not available for participants & transactional mode followed by the resource persons was lecture-cum-discussion method.
4. Participation of teachers was not satisfactory in all subjects. Sometimes programmes were cancelled when the number of participants reported on the first day of the programme was less than 30 (in 2002) & 20 (in 2003). Poor participation of teachers was due to involvement of teachers in examination / evaluation works of school/board or earlier participation in similar programmes. Further due to lack of required number of teachers in some schools the concerned Head of the institution could not relieve their teachers. It was further found that 93% of teachers teaching geography at secondary level had not studied geography at their college level & Hindi & PET teachers were teaching geography.
5. Availability of resource persons was difficult when the training programmes were organized outside of TTEs. Resource persons in geography were rarely available both in TTEs & outside centres. Further due to low honorarium external resource persons particularly from colleges were less keen in taking their classes as well as in submitting brief write-ups.
6. Principle of TTEs as course directors were monitoring & evaluating the programmes with the help of internal subject coordinator. Pre-test & post-test were conducted subject-wise followed by its analysis. Due to lack of funds, faculty members from SCERT, Orissa could not visit training camps. But faculty members of Regional Institute of Education (RIE), Bhubaneswar visited training centers and discussed with the course directors, resource persons, participants & provided necessary feedback. Except few TTEs evaluation of the training programme was not done by the participants.
7. All most all teachers assured that they will disseminate the training inputs among their colleagues & utilize the same for effective classroom instruction, which may bring visible improvement in students' learning.
8. Due to lack of budget provision preparation of training report was not done by all TTEs.
9. Low attendance of participants caused a problem for arranging working lunch & tea within sanctioned amount.
10. Follow-up action was not inbuilt in design of the training programme, which is essential to study its impact.
11. Completion certificates were given to the participants at the end of programme.

## Suggestions

The findings of the study have significant implications for planners & organizers of the programme. Accordingly following specific suggestions are offered for effective organization of future in-service teacher training programmes.

1. Need assessment study for teachers should be more specific & include some new content areas/topics including pedagogical inputs as indicated in the findings. Content enrichment programme may be extended for teachers teaching Oriya & biological science. A short-term course is recommended for teachers teaching geography because this is the only subject which is taught by the teachers having no subject background.
2. Minimum essential facilities like OHP, computer, Xerox machine, audio-visual aids, laboratory should be available in all TTIs / training centers.
3. Duration of the training programme should be atleast 10 days.
4. The Inspector of Schools (IS) & Principals of TTIs may develop appropriate mechanism to ensure more participation of teachers. IS may issue letters to headmasters to depute their teachers for attending the programme with a copy to concerned principal of TTIs.
5. Training packages may be developed involving subject experts / retired teachers & should be sent to all training centers in advance for circulation.
6. Orientation programme for state level key persons may be organized by SCERT / IASEs & training curriculum should be transacted at a higher level of abstraction. Subject experts from universities & the Board of Secondary Education, Orissa may be involved as far as possible.
7. Participatory & interactive mode of transaction should be followed during training programme. Laboratory / field work may be arranged for better exposure & experience.
8. Honorarium for resource persons may be suitably enhanced.
9. Monitoring, supervision & evaluation should be strengthened in order to improve the quality of programme for which necessary funds may be included in the budget.
10. Preparation & dissemination of report is an integral part of the programme. Therefore budget provision should be done for preparation of academic report including pre-test & post-test data analysis.

11. Follow-up action should be done for which funds should be made available.
12. Outside training centers may be given some institutional fee for their logistic supports for organizing the programme.
13. Programme evaluation should be done by the participants, which may provide feedback for organizing future programmes.
14. Instead of issuing completion certificates to participating teachers grade certificate should be issued along with their pre-test & post-test scores.

The above suggestions should be carefully examined from operational angles & appropriate changes may be incorporated by the planners & practitioners for ensuring quality of future training programmes.

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# DIRECTORATE OF TEACHER EDUCATION AND SCERT: ORISSA : BHUBANESWAR

## OUTLINE OF HARD SPOTS IN ENGLISH AT THE SECONDARY LEVEL

Sl. No.	Major Concepts / Contents	Sub-concepts / Contents	No. of Sessions required	Remarks
1.	Listening and Speaking Skill	<ul style="list-style-type: none"> <li>Speech sounds</li> <li>Developing good speech habit</li> </ul>	02	
2.	Reading Comprehension Skills	<ul style="list-style-type: none"> <li>Locating main ideas of the text</li> <li>Identifying connections between main and supporting ideas.</li> <li>Guessing and prediction (of themes).</li> <li>Visualizing the overall organization of texts.</li> <li>Identifying connections between parts of the text through linking devices.</li> <li>Skimming (Reading through the text rapidly in order to comprehend the main idea).</li> <li>Scanning : locating specific items in a text.</li> <li>Recognizing the Writer's intention / point of view.</li> </ul>	04	
3.	Vocabulary sub-skill	<ul style="list-style-type: none"> <li>Guessing the meaning of unfamiliar vocabulary items from the context. Synonyms and Antonyms.</li> </ul>	01	
4.	Note Making	<ul style="list-style-type: none"> <li>Presenting the ideas contained in a text in outline form.</li> </ul>	01	
5.	Critical appreciation of prose pieces and poems	<ul style="list-style-type: none"> <li>Responding to the emotional aesthetic and linguistic qualities of a prose piece / poem.</li> <li>Recognizing how the use of figure of speech, images etc. contributes to the effect of a poem.</li> <li>Use of rhyme, alliteration / repetition etc.</li> </ul>	03	

Sl. No.	Major Concepts / Contents	Sub-concepts / Contents	No. of Sessions required	Remarks
6.	Writing Skills	<ul style="list-style-type: none"> <li>Developing a paragraph from an ideal topic / sentence</li> <li>Creating cohesion in a sequence of sentences</li> <li>Generating and organizing ideas for composition</li> <li>Writing formal and informal, business official letters etc</li> <li>Writing summaries</li> </ul>	04	
7.	Grammar	<ul style="list-style-type: none"> <li>The uses of active and passive sentences in different situations</li> <li>Reporting speech in different contexts</li> <li>Time and tense – distinguishing present simple present progressive, past simple, past perfect, present perfect and simple past etc</li> <li>Talking about the future</li> <li>Modals · Expression of attitude / judgement</li> <li>Quantifiers · determiners</li> </ul>	08	

**OUTLINE OF HARD SPOTS IN GEOGRAPHY AT THE SECONDARY LEVEL**  
**ବୁଗୋଳ**

Sl.No	Major Concepts / Contents	Sub- Concepts / Contents	No. of Sessions required
1	ପୃଥିବୀର ଗତି	1.1 ଆକୃତି ଗତି 1.2 ବାର୍ଷିକ ଗତି (ମାରିଲେନ୍ସ) 1.3 ଗତିର ପଦାଫଳ	3 (Three)
2	ଚିତ୍ରଦ୍ୱାରା ପାର୍ଶ୍ୱସଂଖ୍ୟାତ ତଥ୍ୟ ପ୍ରଦର୍ଶନ	2.1 ଲେଖା ଚିତ୍ର 2.2 ଡାପମାନ ଲେଖା 2.3 କୃତ୍ରିମତ ଲେଖା 2.4 ରେଖା (ସମତଳ)	3 (Three)
3	ଆକାଶ ଓ ଭୂଗର୍ଭିଣୀ, ସମୟ ନିରୂପଣ	3.1 ଆକାଶ 3.2 ଭୂଗର୍ଭିଣୀ 3.3 ସମୟ ନିରୂପଣ 3.4 ସମୟ ସମୟ ଓ ପ୍ରମାଣ ସମୟ 3.5 ତାରିଖ ରେଖା ଓ ଆକାଶଚାରୀ ତାରିଖ ରେଖା	3 (Three)
4	ହିମବ୍ରହ୍ମାଣ୍ଡ କାର୍ଯ୍ୟ	4.1 କାର୍ଯ୍ୟ 4.2 ସମ୍ପର୍କିତ ଭୂମିରୂପ 4.3 ସମୟ ଗତିର ଭୂମିରୂପ	2 (Two)
5	ଜଳାବଳୀ	5.1 ସୂକ୍ଷ୍ମ 5.2 ଜଳର ବାଷ୍ପୀକରଣ 5.3 ଜଳବାୟୁର ମଣ୍ଡଳୀୟ ବାଷ୍ପୀକରଣ	2 (Two)



Major Concepts / Contents	Sub- Concepts / Contents	No. of Sessions required	Remarks
ସାଧାରଣ ଜଳର ଉପଯୋଗ (କୃତ୍ରୀୟ)	6.1 କୃତ୍ରୀୟ ସୂକ୍ଷ୍ମ 6.2 ପ୍ରତ୍ୟେକ ଉପଯୋଗ (ବ୍ୟବହାର କର) 6.3 ପ୍ରତ୍ୟେକ ଉପଯୋଗ ଓ କାର୍ଯ୍ୟକାରୀ 6.4 କୃତ୍ରୀୟ କାର୍ଯ୍ୟ	3 (Three)	
ଜଳର ଉପଯୋଗ ଓ ପ୍ରାକୃତିକ ଉପଯୋଗ (କାର୍ଯ୍ୟ ଓ ଉପଯୋଗ)	7.1 ଜଳର ଉପଯୋଗ 7.2 ଉପଯୋଗ 7.3 ଉପଯୋଗ ଓ ପ୍ରାକୃତିକ ଉପଯୋଗ 7.4 ପ୍ରାକୃତିକ ଜଳର ଉପଯୋଗ 7.5 ଜଳର ଓ ପ୍ରାକୃତିକ ପ୍ରାକୃତିକ ଉପଯୋଗ	3 (Three)	
ପାଣି ପ୍ରାକୃତିକ ଉପଯୋଗ ଓ କାର୍ଯ୍ୟକାରୀ	8.1 ପାଣି ପ୍ରାକୃତିକ ଉପଯୋଗ 8.2 ପାଣି ପ୍ରାକୃତିକ ଉପଯୋଗ 8.3 ପାଣି ପ୍ରାକୃତିକ ଉପଯୋଗ	2 (Two)	
ଉପଯୋଗରେ ଉପଯୋଗ କାର୍ଯ୍ୟକାରୀ ପ୍ରାକୃତିକ ପ୍ରାକୃତିକ	9.1 ପ୍ରାକୃତିକ ପ୍ରାକୃତିକ 9.2 ପ୍ରାକୃତିକ ପ୍ରାକୃତିକ 9.3 ଉପଯୋଗରେ ଉପଯୋଗ ପ୍ରାକୃତିକ	3 (Three)	
ଉପଯୋଗରେ ଉପଯୋଗ କାର୍ଯ୍ୟକାରୀ ପ୍ରାକୃତିକ ପ୍ରାକୃତିକ	10.1 ପ୍ରାକୃତିକ ଉପଯୋଗ 10.2 ପ୍ରାକୃତିକ ଉପଯୋଗ 10.3 ପ୍ରାକୃତିକ ଉପଯୋଗ	2 (Two)	
Total 26 sessions			

# OUTLINE OF HARD SPOTS IN PHYSICAL SCIENCE AT THE SECONDARY LEVEL

Sl. no	Major Concepts / Contents	Sub- Concepts / Contents	No. of Sessions required	Remarks
1.	କାର୍ବନ ଓ ଚାଉ ଯୋଗିକ ବସ୍ତୁ	<ul style="list-style-type: none"> <li>କାର୍ବନର ପ୍ରକାରଭେଦ ଓ ସଂରଚନା</li> </ul>	01	
2.	ବଜ୍ର ଓ ଚାପ	<ul style="list-style-type: none"> <li>ଚାପ କଣ</li> <li>ହିର ତରଳ ପଦାର୍ଥର ଚାପ ଓ ଉତ୍ପତ୍ତିର ଇତିହାସ</li> <li>ପାରାକ୍ଷର ନିୟମ ଓ ଏହାର ପ୍ରୟୋଗ</li> <li>ଉତ୍କଳିତ ବିରୋଧାଭାସ ଓ ଚାଉ ସମାଧାନ</li> <li>ଉତ୍କଳିତାନ୍ତର ଉଦାହରଣରେ ଶକ୍ତି ସଂରକ୍ଷଣ</li> </ul>	<div>01</div> <div>01</div> <div>03</div> <div>01</div>	
3.	ବିଦ୍ୟୁତ୍ ସ୍ତ୍ରୋତ	<ul style="list-style-type: none"> <li>ବିଦ୍ୟୁତ୍ ସ୍ତ୍ରୋତର ଉତ୍ପାଦନ (ଭୋଲଟାୟା ସେଲ୍)</li> <li>ଭୋଲଟାୟା ସେଲ୍‌ର କାର୍ଯ୍ୟ ଓ ତତ୍ତ୍ୱସମ୍ବନ୍ଧ ସଂପର୍କିତ ଉଦାହରଣ ପ୍ରତିଷ୍ଠାପନ</li> <li>ଭୋଲଟାୟା ସେଲ୍‌ର ବିଦ୍ୟୁତ୍ ଶକ୍ତିର ପ୍ରାପ୍ତି ଓ ବିଦ୍ୟୁତ୍ ସ୍ତ୍ରୋତ</li> <li>ଭୋଲଟାୟା ସେଲ୍‌ର ବ୍ୟବହାର ଓ ଏହାର ପ୍ରୟୋଗ</li> <li>ଭୋଲଟାୟା ସେଲ୍‌ର ବ୍ୟବହାର</li> <li>ଭୋଲଟାୟା ସେଲ୍‌ର ବ୍ୟବହାର</li> <li>ଭୋଲଟାୟା ସେଲ୍‌ର ବ୍ୟବହାର</li> </ul>	<div>01</div> <div>01</div> <div>03</div> <div>01</div>	

Sl. no.	Major Concepts / Contents	Sub- Concepts / Contents	No. of Sessions required	Remarks
4.	ଅଣୁ ଓ ପରମାଣୁ	ପାରମାଣବିକ ବସ୍ତୁ ଓ ମୋଲ : * ପାରମାଣବିକ ବସ୍ତୁ * ଆଣବିକ ବସ୍ତୁ * ମୋଲ୍ ସମ୍ବନ୍ଧ ଧାରଣା  ବେଗ ଓ ସ୍ପରଶ ସମୟ ଓ ଦୂରତାର ବିଭିନ୍ନ ଗ୍ରାଫ୍ ଓ ଉତ୍ତରର ଆଙ୍କଣ : * ଉତ୍ତର ଆଙ୍କନର ସାଧାରଣ ପ୍ରଣାଳୀ * ଉତ୍ତର ଆଙ୍କନର ପରିମାଣ * ବିଭିନ୍ନ ପ୍ରକାରର ଫଳନ ଏବଂ ଏହାର ପରିବର୍ତ୍ତନର ହାର * ଫଳନ - ଚକ୍ରାନ୍ତ କେଉଁବିନ୍ଦୁରେ ଉତ୍ତର ଆଙ୍କଣ ଏବଂ ପରିବର୍ତ୍ତନ ହାର  ଦ୍ରବ୍ୟ ଓ ସେଇ : * ଅର୍ଦ୍ଧ ପରିବାହୀ * ମୋଟିର ଅର୍ଦ୍ଧପରିବାହୀ - ଲାଭାନ୍ତର ଗଠନ ଓ ବିଦ୍ୟୁତ୍ ପରିବାହନ * ଶ୍ଳୋଷିତ ଅର୍ଦ୍ଧପରିବାହୀ - ତାପାନ୍ତର ଗଠନ ଏ ବିଦ୍ୟୁତ୍ ପରିବାହନ * P-N Junction ର ଶ୍ଳେଷିତ ଗୁଣ * ଦ୍ରବ୍ୟ ସେଇର ଗଠନ ଓ କ୍ରୟ * ଦ୍ରବ୍ୟ ବ୍ୟାବହାର ଏବଂ ଏହାର ଉପକାରୀ * ଦ୍ରବ୍ୟ ସେଇର ବ୍ୟବହାର	01 02  01 01  01 02  01 01 01 03 01 01	
5.	ଉଦ୍ଭିଦ			
6.	ପ୍ରାଣିଜଗତ			



# OUTLINE OF HARD SPOTS IN MATHEMATICS AT THE SECONDARY LEVEL

## ଗଣିତ (ବାଳଗଣିତ)

SL.No	Major Concepts / Contents	Sub- Concepts / Contents	No. of Sessions required	Remarks
1	ବହୁପଦୀ ଗଣିତ ଓ ପିନ୍ଧିନୋମିଆଲ୍	1.1 ଭାଗଶେଷ ଉପପାଦ୍ୟ 1.2 ଉପାଦକ ନିର୍ଣ୍ଣୟ ସମ୍ବନ୍ଧୀୟ ଟିପ୍ପଣିକାମ	01	
2	ପଦନ ଓ ଲେଖକ୍ତି	2.1 ଦୁଇଟି ସେଟର ଲାଟେଟାଲ୍ ଟୁଥର 2.2 ଦୁଇଟି ସେଟର ଉପାଦାନ ମଧ୍ୟରେ ସମ୍ବନ୍ଧ 2.3 ସମ୍ବନ୍ଧ ଓ ପଦନ 2.4 ପଦନର ଲେଖକ୍ତି	01	
3	ଲଗାରିଦମ୍	3.1 ବନ୍ଧ - ଆଧାର ବିଶିଷ୍ଟ ଲଗାରିଦମ୍ 3.2 ମାନ୍ଦିରା ଓ କ୍ୟାଲକୁଲସ୍ 3.3 ଲଗାରିଦମ୍ ସମ୍ବନ୍ଧୀୟ ନିୟମ 3.4 ଲଗାରିଦମ୍ ପ୍ରୟୋଗ 3.5 ଚକ୍ରବର୍ତ୍ତୀ ସୁଧ ହିସାବ	01	
4	ପରିସଂଖ୍ୟାନ	4.1 ସଂଭାର ବିଭାଜନ 4.2 ଉଚ୍ଚ ଓ ନିମ୍ନ ସୀମା ନିର୍ଣ୍ଣୟ 4.3 ସଂଭାରର ମଧ୍ୟବିନ୍ଦୁ ନିର୍ଣ୍ଣୟ	02	
5	ବ୍ୟାବହାରିକ ଗଣିତ	5.1 ଅଂଶ ଓ ଚମତ୍ତ୍ୱ 5.2 ସଂଯୋଗ ବ୍ୟାପକ ଆକାର	01	

Sl.No.	Major Concepts / Contents	Sub- Concepts / Contents	No. of Sessions required	Remarks
6 (a)	ବାସ୍ତବ ସଂଖ୍ୟା	6.1 ଗଣନ ସଂଖ୍ୟା ଓ ପୂର୍ଣ୍ଣ ସଂଖ୍ୟା 6.1.1 ଗୌଣିକ ଓ ଯୌଗିକର ଧାରଣା 6.2 ପରିମେୟ ସଂଖ୍ୟା ଓ ସଂଖ୍ୟା ରେଖାରେ ପରିମେୟ ସଂଖ୍ୟାର ଅବସ୍ଥାପନ 6.3 ପରିମେୟ ସଂଖ୍ୟାର ଧାରଣା: 6.3.1 $\sqrt{2}$ , $\sqrt{3}$ ଆଦି ଅପରିମେୟ ସଂଖ୍ୟା 6.3.2 ଅଣ ପୌନଃପୁନିକ ଅସୀମ ଚକ୍ଷୁମିକ ସଂଖ୍ୟା 6.3.3 $\log 2$ , $\sin 10$ , $\pi$ , $e$ ଆଦି ଅପରିମେୟ ସଂଖ୍ୟା 6.4 ଅନୁପାତ ଓ ଗୁଣନ 6.5 ଯୌଥ ବେଗ	02	
(b)	ଅନୁପାତ, ସମାନ୍ତରାପ ଓ ବ ବେଗ		02	
7	ସୂଚକ ଅକ୍ଷର ଗାଣିତିକିତ୍ବ ଏବଂ ପାରାସମୀପନୀୟତା	7.1 ସରଳ ରେଖାର ସ୍ପୋର 7.2 ସରଳ ରେଖାର ଛେଦାଂଶ 7.3 ସରଳ ରେଖାର ସମାନ୍ତରତା	01	
8	ବୃତ୍ତାକାର ସମାନ୍ତରତା	8.1 ବୃତ୍ତାକାର ସମାନ୍ତରତା ଓ ବୃତ୍ତାକାର 8.2 ବୃତ୍ତାକାର ସମାନ୍ତରତା ସମାନ୍ତରତା ଗୁଣନ	01	
9	କମ୍ପ୍ୟୁଟର	9.1 ବୃତ୍ତ ଗଣିତ 9.2 କମ୍ପ୍ୟୁଟରର ବିଭିନ୍ନ ବିଭାଗ ଓ ବିଭିନ୍ନ ବିଭାଗର ଗାଣିତିକ 9.3 ଆକାଶଗୋଳ 9.4 ସ୍ପେସ୍ ଟାଇମ୍	02	
Total			13 sessions	

# OUTLINE OF HARD SPOTS IN MATHEMATICS AT THE SECONDARY LEVEL

## ଗଣିତ (ଜ୍ୟାମିତି)

Sl.No	Major Concepts / Contents	Sub- Concepts / Contents	No. of Sessions required	Remarks
1	ସଞ୍ଚାର ପଥ (ଲୋକସ୍)	<p>1.1 ସଞ୍ଚାର ପଥ (ଲୋକସ୍) କଣ</p> <p>1.2 କଣ ସୂଚକ ତଥ୍ୟ ଓ କଣ ସର୍ତ୍ତକୁ ସିଦ୍ଧ କରୁଥିବା ଲୋକସ୍ ଅଙ୍କନ କରିବା ।</p> <p>1.3 ଲୋକସ୍ ସମ୍ବନ୍ଧୀୟ ଉପପାଦ୍ୟର ପ୍ରମାଣ</p> <p>1.4 ବିଭିନ୍ନ ସର୍ତ୍ତରେ ଲୋକସ୍ ନିର୍ଣ୍ଣୟ</p>	01	
2	ପରିମିତି	<p>2.1 ଅଭିକ୍ଷେପ</p> <p>2.1.1 ଅଭିକ୍ଷେପ କଣ</p> <p>2.1.2 ଏକ ଲେଖାଉପରେ ବିଭିନ୍ନ ଜ୍ୟାମିତିକ ଚିତ୍ର (ବିନ୍ଦୁ/ ରେଖାଖଣ୍ଡ) ର ଅଭିକ୍ଷେପ କଣ ଓ ନିପରି ପାଇବ</p> <p>2.1.3. ଆପୋଲିନିୟ ଉପପାଦ୍ୟ</p> <p>2.2. ମାପ ଏକକ</p> <p>2.2.1 ଏକମାତ୍ରରେ ଏକକ, ଦୁଇମାତ୍ରରେ ଏକକ ଓ ତିନି ମାତ୍ରରେ ଏକକ</p>	01	
3	ସିଦ୍ଧିତ, କୋର୍ ଓ ଗୋଲକ	<p>3.1 ଆକୃତି</p> <p>3.2 ପୃଷ୍ଠତଳର କ୍ଷେତ୍ରଫଳ- ସ୍ୱତନ୍ତ୍ର ନିର୍ଣ୍ଣୟ ସମ୍ବନ୍ଧୀୟ ସୂତ୍ରମାନ</p> <p>3.3 ଆୟତନ - ସ୍ୱତନ୍ତ୍ର ନିର୍ଣ୍ଣୟ ସମ୍ବନ୍ଧୀୟ ସୂତ୍ରମାନ</p>	01	

Sl. No	Major Concepts / Contents	Sub- Concepts / Contents	No. of Sessions required	Remarks
4	ଚକ୍ରଚ୍ଛେଦ	<p>4.1 ବଂଶୀ</p> <p>4.2 ସ୍ୱରର ପ୍ରକାର ଚକ୍ରଚ୍ଛେଦ</p> <p>4.3 ଉଚ୍ଚର ଚକ୍ରଚ୍ଛେଦ</p>	01	
5	ଚକ୍ରଚ୍ଛେଦ	<p>5.1 ବଂଶୀ</p> <p>5.2 ଉଚ୍ଚର ଚକ୍ରଚ୍ଛେଦ</p> <p>5.2 ଚକ୍ରଚ୍ଛେଦର ଆକାର ଲେଖି ପରିମାଣର ସମୀକ୍ଷା</p> <p>5.3 ଚକ୍ରଚ୍ଛେଦର ବାଦ୍ୟର ଲେଖି ପରିମାଣର ସମୀକ୍ଷା</p>	01	
6	ବୃଦ୍ଧ	<p>6.1 ଉପପାଦ୍ୟ ଶାଳ ବିଶେଷ ଆଲୋଚନା</p> <p>6.2 ସାଧାରଣ ଶ୍ରବଣ (ସରଳ ଓ ଜଟିଳ)</p> <p>ସରଳୀକୃତ ବିଶେଷ ଧାରଣା</p>	01	
7	ସାମୁଦ୍ରିକ	<p>7.1 ବ୍ୟାକ୍ତିଗତ ଚିନ୍ତନ ଆହୁରି ଓ ଆକାର</p> <p>7.2 ବ୍ୟାକ୍ତିଗତ ଚିନ୍ତନ ସାମୁଦ୍ରିକ ଓ ସର୍ବସମାପ୍ତ</p> <p>7.3 ବୃଦ୍ଧର ଚିନ୍ତନ ସାମୁଦ୍ରିକ</p> <p>7.4 ବୃଦ୍ଧର ସାମୁଦ୍ରିକ ଚିନ୍ତନର ଉପରାମ ଧାରଣା ସମୀକ୍ଷା</p>	02	



# **DIRECTORATE OF TEACHER EDUCATION AND SCERT: ORISSA : BHUBANESWAR**

## **SESSION-PLAN FOR A SEVEN-DAY CONTENT ENRICHMENT PROGRAMME IN ENGLISH FOR SECONDARY SCHOOL TEACHERS FOR THE SESSION, 2002-2003**

Days	Informal Session 10.00 a.m. to 10.30 a.m.	First Session 10.30 a.m. to 11.45 a.m.	11.45 a.m. to 12.00 Noon	Second Session 12.00 Noon to 01.15 p.m.	01.15 p.m. to 02.15 p.m.	Third Session 02.15 p.m. to 03.30 p.m.	3.30 p.m. to 3.45 p.m.	Fourth Session 3.45 p.m. to 5.00p.m.
1 <sup>st</sup>	Registration	Pre-Test		Teaching of English Our Perception		Listening and Speaking skills Speech sounds		Reading Comprehension (I)
2 <sup>nd</sup>	Recap	Listening and speaking skills Developing good speech habits		Reading Comprehension (II)		Vocabulary sub-skill		Time and tense (I)
3 <sup>rd</sup>	Recap	Time and Tense I		Writing Skill (I)		Critical appreciation on prose pieces		Critical appreciation of Poems
4 <sup>th</sup>	Recap	Writing Skill II		Reading Comprehension (III)		Demonstration on any topic		Discussion
5 <sup>th</sup>	Recap	Verb Phrase		Reading Comprehension (IV)		Quantifiers and Determiners		Writing Skill (III)
6 <sup>th</sup>	Recap	The Passives		Note-making		Reported speech		Modals (I)
7 <sup>th</sup>	Recap	Modals (II)		Writing Skill (IV)		Discussion on specific textual topics		Post-Test

**N.B. :** This is a sample Session Plan which is flexible for adoption as per the convenience of the Institution concerned without omitting any item

Feedback received from the Teachers on this Session Plan may please be intimated to the Directorate.

# SESSION - PLAN FOR A SEVEN-DAY CONTENT ENRICHMENT PROGRAMME IN GEOGRAPHY FOR SECONDARY SCHOOL TEACHERS FOR THE SESSION, 2002-2003

Days	Informal Session 10.00 a.m to 10.30 a.m	1st session 10.30 a.m to 11.45 a.m	11.45 a.m to 12.00 Noon	2nd session 12.00 Noon to 01.15 p.m	01.15 p.m to 02.15 p.m	3rd session 02.15 p.m to 03.30 p.m	03.30 p.m. to 03.45 p.m	4th session 3.45 p.m to 5.00 p.m
୧ମ ଦିନ	Registration	Pre-Test	T E A C H E R S B R E A K	ଆହୁଳ ଗତି	L U N C H B R E A K	ଲେଖଚିତ୍ର - ଚାପମାନ	T E A C H E R S B R E A K	ହିମବାର - ଶୟଳକିର କାର୍ଯ୍ୟ
୨ୟ ଦିନ	Recap	ସାମାଜିକ ରେଖାଦ୍ୱାରା ଭୂମିରୂପ ପ୍ରଦର୍ଶନ - ସାଙ୍କେତିକ ପ୍ରଣାଳୀ		ବାର୍ଷିକ ଗତି		ଲେଖଚିତ୍ର - ବୃକ୍ଷପାତ		ହିମବାର - ପଞ୍ଚମ କଳିତ କାର୍ଯ୍ୟ
୩ୟ ଦିନ	Recap	ଗାଣିତିକ ପ୍ରଣାଳୀ		ଆହୁଳ ଓ ବାର୍ଷିକ ଗତିର ପଦାବଳୀ		ଲେଖାଚିତ୍ର - ଖଣି ଚିତ୍ର		ହୁଆରର ପୃଷ୍ଠି
୪ର୍ଥ ଦିନ	Recap	ସମୋଚ୍ଚରେଖା ମାଧ୍ୟମରେ ପୃଷ୍ଠା ଭୂମିରୂପ ପ୍ରଦର୍ଶନ		ଆକାଶ ଓ ବ୍ରାହ୍ମଣା		କାର୍ତ୍ତିକର - ପୃଷ୍ଠା, ବ୍ରାହ୍ମଣ କାର୍ତ୍ତିକର		ପ୍ରତ୍ୟକ୍ଷ ଓ ପରୋକ୍ଷ ହୁଆର
୫ମ ଦିନ	Recap	ବୃକ୍ଷୋଦ ଶିକ୍ଷାରେ ମାନଚିତ୍ରର ବ୍ୟବହାର - ପ୍ରକାରଭେଦ	T E A C H E R S B R E A K	ସ୍ଥାନୀୟ ସମୟ ଓ ପ୍ରମାଣ ସମୟ	L U N C H B R E A K	ନାତିଶାରେଖ ମଣ୍ଡଳୀୟ କାର୍ତ୍ତିକର	T E A C H E R S B R E A K	ଗୁରୁ ଓ ଲମ୍ବ ହୁଆର ହୁଆରର କାର୍ଯ୍ୟ
୬ଷ୍ଠ ଦିନ	Recap	ମାନ : ଶ୍ରେଣୀ ବିଭାଗ, ମାନଚିତ୍ରର ବ୍ୟବହାର		ଗାଣିତିକ ରେଖା ଓ ଗାଣିତିକ ରେଖା		ଭାରତର ଜଳବାୟୁର ନିୟମାବଳୀ-ଗୁରୁ		ପାଗପର୍ଯ୍ୟବେକ୍ଷଣ : ପାଗପର୍ଯ୍ୟବେକ୍ଷଣ ସମୟ
୭ମ ଦିନ	Recap	ପାଣିପାଗର ଭାବୀ ପୂର୍ବାନୁମାନ		ଭାରତ ବୃକ୍ଷପାତର ଆହୁଳିକ ଚିତ୍ରରଣ : ଗାଣିତିକ ଚିତ୍ରରଣ		ଭାରତ ଓ ଗାଣିତିକ ପ୍ରାକୃତିକ ଚିତ୍ରରଣ		Post-Test

N.B. : • This is a sample session plan which is flexible for adoption as per the convenience of the institution concerned without omitting any item.  
• The feedback received from the teachers on this Session Plan may please be intimated to the Directorate.

**SESSION - PLAN FOR A SEVEN-DAY CONTENT ENRICHMENT PROGRAMME  
IN PHYSICAL SCIENCE FOR SECONDARY SCHOOL TEACHERS FOR THE SESSION, 2002-2003**

Days	Informal Session 10.00 a.m to 10.30 a.m	1st session 10.30. a.m to 11.45 a.m	11.45 a.m to 12.00 Noon	2nd session 12.00 Noon to 01.15 p.m	01.15 p.m to 02.15 p.m	3rd session 02.15 p.m. to 03.30 p.m	03.30 p.m to 03.45 p.m	4th session 3.45 p.m to 5.00 p.m
୧ମ ଦିନ	Registration	Pre-Test	T E A C H E R S B R E A K	ଭାରତୀୟ ପ୍ରକାର ଭେଦ ଓ ସଂରଚନା	L U N C H B R E A K	ଶିଳ୍ପ ଚଳନପଦାର୍ଥର ବାପ ଓ ଉତ୍ପାଦନର ବାପ	T E A C H E R S B R E A K	ପାଞ୍ଚାଙ୍ଗ ନିୟମ ଓ ଚା'ର ପ୍ରୟୋଗ
୨ୟ ଦିନ	Recap	ଉତ୍କଳିତ ବିରୋଧୀ ଭାବ		ବିଦ୍ୟୁତ୍ ପ୍ରୋତ୍ସାହନ ଉତ୍ସ (ଭୋଲଟାୟ ସେଲ୍)		ରାସାୟନିକ ଶକ୍ତିର ବିଦ୍ୟୁତ୍ ଶକ୍ତିକୁ ରୂପାନ୍ତର		ଭୋଲଟାୟ ସେଲ୍ ର ଚୋଷ ଓ ଏହାର ଦୁରାବଲତା
୩ୟ ଦିନ	Recap	ପାଠ୍ୟପାଠ୍ୟବିତ୍ତ ସମ୍ବନ୍ଧ ଓ ଆଣବିକ ସଂସ୍ଥା		ମୋଲ୍ ସମ୍ବନ୍ଧୀୟ ଧାରଣା		ସମୟ ଓ ଦୂରତାର ବିଭିନ୍ନ ପ୍ରାପ୍ତି ଓ ଉତ୍କଳ ଧାରଣା		ବିଭିନ୍ନ ପ୍ରକାରର ପଦନ
୪ର୍ଥ ଦିନ	Recap	ବିଶାଳ (ସେଲ୍‌ସ୍‌ଟେସ୍ ପ୍ରଦର୍ଶନ)	T E A C H E R S B R E A K	ଆଲୋଚନା		ଆବିଷ୍କାର - ମୌଳିକ ଓ ଯୌଗିକ	T E A C H E R S B R E A K	ପି.ଏସ୍. ଇନ୍‌ସୁଲେଟିଭ୍ ଲେଡିଂ ବୁକ୍
୫ମ ଦିନ	Recap	ସୌର ସେଲ୍- ଗଠନ ଓ କାର୍ଯ୍ୟ		ଅନ୍ତର୍ଦ୍ଧାନ ଉତ୍କଳ : ପ୍ରୋତ୍ସାହନ ଓ ବିଭେଦ		ବିଦ୍ୟୋତ୍ତାପ ପ୍ରୋତ୍ସାହନ କାର୍ଯ୍ୟ		ଉତ୍କଳ
୬ଷ୍ଠ ଦିନ	Recap	ରାସାୟନିକ ପ୍ରତିକ୍ରିୟା- ସମୀକରଣର ସମସ୍ତତ୍ତ୍ୱ (୧)		ରାସାୟନିକ ପ୍ରତିକ୍ରିୟା- ସମୀକରଣର ସମସ୍ତତ୍ତ୍ୱ (୨)		ବିଦ୍ୟୁତ୍ ବିଭେଦ		ଉତ୍କଳ ନିୟମ
୭ମ ଦିନ	Recap	ଭାରତୀୟ (୧): ବୃତ୍ତାନ୍ତର ଗଣନା	T E A C H E R S B R E A K	ଭାରତୀୟ (୨): ପାରାମିଟ୍ରିକ୍ ନିୟମ		ଭାରତୀୟ (୩): ବିଦ୍ୟୁତ୍ ବାହକ ବଳ		Post-Test

N.B. : • This is a sample session plan which is flexible for adoption as per the convenience of the institution concerned without omitting any item.  
• The feedback received from the teachers on this Session Plan may please be intimated to the Directorate.

**SESSION - PLAN FOR A SEVEN-DAY CONTENT ENRICHMENT PROGRAMME  
IN MATHEMATICS FOR SECONDARY SCHOOL TEACHERS FOR THE SESSION, 2002-2003**

Days	Informal Session 10.00 a.m. to 10.30 a.m.	1st session 10.30 a.m. to 11.45 a.m.	11.45 a.m. to 12.00 Noon	2nd session 12.00 Noon to 01.15 p.m.	01.15 p.m. to 02.15 p.m.	3rd session 02.15 p.m. to 03.30 p.m.	03.30 p.m. to 03.45 p.m.	4th session 3.45 p.m. to 5.00 p.m.
ମଙ୍ଗଳ ଦିନ	Registration	Pretest	T H E B R A K	ବୃତ୍ତାନ୍ତ ଗାଣିତି	L U N C H B R E A K	ବୃତ୍ତାନ୍ତ	T H E B R A K	ଗୁଗୁଡ଼ ସଂଖ୍ୟା
ସୋମ ଦିନ	Recap	ଠିକଣା ଓ ଲେଖାଚିତ୍ର		ବୃତ୍ତାନ୍ତ		ବାହାରରେ ଶିକ୍ଷାଦାନ		ଆଲୋଚନା
ମଙ୍ଗଳ ଦିନ	Recap	ପରିସଂଖ୍ୟାନ		ସଂଖ୍ୟାପଥ		ଅନୁପାତ ଓ ସମାନୁପାତ		ଲେଖାଚିତ୍ର
ବୁଧ ଦିନ	Recap	ବୃତ୍ତ		ସଂଖ୍ୟାଚାଳିତ ଗଣିତ		ସଂଖ୍ୟାଚିତ୍ର ଶିକ୍ଷାଦାନ		ଆଲୋଚନା
ଗୁରୁ ଦିନ	Recap	ସରଳରେଖାର ସମୀକରଣ	T H E B R A K	ସିଲିଣ୍ଡର, କୋନ୍, ଗୋଲକ	L U N C H B R E A K	ପରିମିତି	T H E B R A K	ବୃତ୍ତ
ଶୁକ୍ର ଦିନ	Recap	ପରିମିତି ଶିକ୍ଷାଦାନ ଓ ଆଲୋଚନା		ବୃତ୍ତାନ୍ତ ସମୀକରଣ		ସଂଖ୍ୟା		ବୃତ୍ତ
ଶନି ଦିନ	Recap	ସଂଖ୍ୟା		ସଂଖ୍ୟାଚାଳିତ ଗଣିତ		ବୃତ୍ତାନ୍ତ		ବୃତ୍ତ
ରବି ଦିନ	Recap	ସଂଖ୍ୟା		ସଂଖ୍ୟାଚାଳିତ ଗଣିତ		ବୃତ୍ତାନ୍ତ		ବୃତ୍ତ

*N.B. : • This is a sample session plan which is flexible for adoption as per the convenience of the institution concerned without omitting any item.  
• The feedback received from the teachers on this Session Plan may please be intimated to the Directorate.*

## APPENDIX – C

### In-service Teacher Training Programmes in Orissa (Evaluation Proforma)

#### I. Identification Data

- (a) Title of the Programme \_\_\_\_\_
- (b) Duration : From \_\_\_\_\_ to \_\_\_\_\_
- (c) Address of the Organising Institution \_\_\_\_\_
- (d) Address of the Training Centre/Camp \_\_\_\_\_
- (e) Type of the Programme (Please put √ mark as applicable)  
 (i) Orientation/Training (ii) Subject/Theme based (iii) Any other (Please specify)

#### II. Participants' Profile.

- (a) Category of Participants : (Please put √ mark as applicable)
- Teachers Primary/Upper Primary/Secondary/Senior Secondary
  - Teacher Educators : Elementary/Secondary
  - Field Functionaries ; CRC/BRC/SI/DI/HM/CI
  - Any other (Please specify) \_\_\_\_\_
- (b) Number of participants invited \_\_\_\_\_
- (c) Number attended \_\_\_\_\_

Sex	Category	
	General	SC ST
Male		
Female		

#### III. Training Inputs

Availability of physical facilities (Please put √ mark as applicable)

- |                                       |                                                |
|---------------------------------------|------------------------------------------------|
| (i) Camping facilities                | Residential/Partly residential/non residential |
| (ii) Seating arrangement in the class | Poor/Satisfactory                              |
| (iii) Furniture                       | Poor/Satisfactory                              |
| (iv) Space for group work :           | Poor/Satisfactory                              |

#### IV. TIME TABLE

- |                                                                 |                         |
|-----------------------------------------------------------------|-------------------------|
| a. Time Table                                                   | Available/Not Available |
| b. Training programme conducted as per timetable                | Yes/No                  |
| c. Timetable provides adequate time for transacting all modules | Yes/No                  |
| d. Does the timetable provide scope for                         |                         |
| ▪ Field visits/out-door activities                              | Yes/No                  |
| ▪ Practical work                                                | Yes/No                  |

*(A copy of the timetable may be collected)*

#### V. TRANSACTIONAL APPROACH ADOPTED (Give ✓ mark as applicable)

- Lecture/Discussion/Participatory approach/Activity based/Group work
- Any other (please specify)

#### VI. Resource Persons (RP)

- |                                              |                |
|----------------------------------------------|----------------|
| a. Availability of RPs as per the time table | Yes/No         |
| b. No. of RPs invited                        | External _____ |
|                                              | Internal _____ |
|                                              | _____          |
|                                              | Total          |

#### VII. DISCUSSION WITH THE COURSE DIRECTOR/CO-ORDINATOR

- |                                                                                                            |                       |
|------------------------------------------------------------------------------------------------------------|-----------------------|
| a. Communication received in advance from SCERT, Orissa about the Programme                                | Yes/No                |
| b. Arrangement of training programme was done (Venue, programme schedule, RPs, stay arrangements etc)      | Yes/No                |
| c. Funds                                                                                                   | Adequate/Not adequate |
| d. Availability of required no. of Teaching Learning Materials (TLM)/Training Modules to the participants. | Yes/No                |
| e. Do the resource persons submit any paper on the topics of training ?                                    | Yes/No                |
| f. Participants' attendance                                                                                | Regular/Not regular   |
| g. Procedure of selecting of resource persons                                                              |                       |

- |                                                                   |                          |
|-------------------------------------------------------------------|--------------------------|
| h. Arrangement of boarding and lodging for the participants       | Done/not done            |
| i. Provision for programme evaluation at the end of the programme | Yes/No                   |
| j. Plan for Follow-up action                                      | Yes/No                   |
| k. Budget provision for preparing academic report                 | available/ not available |
| l. Suggestions for improvement of Programme                       |                          |

### VIII. DISCUSSION WITH THE RESOURCE PERSONS

- |                                                                               |                               |
|-------------------------------------------------------------------------------|-------------------------------|
| a. Interaction of participants in the class                                   | Satisfactory/not satisfactory |
| b. Motivation level of participants                                           | Satisfactory/not satisfactory |
| c. Time allotted for content coverage                                         | adequate/Not adequate         |
| d. Quality of TLM/Training Package, if available                              | Good/Poor                     |
| e. Do you give handouts to the participants on the topic of your discussion ? | Yes/No                        |
| f. Cooperation from course coordinator and participants                       | Yes/No                        |
| g. Concrete suggestions for improvement of programme                          |                               |

### IX. GROUP DISCUSSION WITH PARTICIPANTS

- |                                                                       |                       |
|-----------------------------------------------------------------------|-----------------------|
| a. Relevance/need of the programme for their professional growth      | Yes/No                |
| b. Is there any pre-test for you on the first day of the programme ?  | Yes/No                |
| c. Physical facilities of the training camp                           | Good/Poor             |
| d. Duration of the course                                             | Adequate/Not adequate |
| e. Availability of Teaching Learning Materials (TLM)/ Training Module | Yes/No                |
| f. Timely availability of resource persons                            | Yes/No                |

h Training inputs are	a) generalized in nature	Yes/No
	b) specialized and need based	Yes/No
	c) generating new ideas/techniques for professional practices	Yes/No

1 Which component was effective ?

1 How do you plan to use training inputs in future ?

Remarks of the observer

**Signature of the observer with date**



## APPENDIX – D

### List of Experts Associated with Development of Evaluation Tool

<u>External</u>	<u>Internal</u>
1. Prof. P. C. Mohapatra, Former Director, Directorate of Teacher Education & SCERT, Orissa, Bhubaneswar	1. Prof. M.A. Khader, Principal, RII., Bhubaneswar
2. Prof. U.N. Dash, P.G. Dept. of Psychology, Utkal University, Vani Vihar, Bhubaneswar.	2. Prof. S.P. Anand, Head Dept. of Education, RIE, Bhubaneswar.
3. Dr. S. Samal, Former Head, Dept. of Education Ravenshaw College, Cuttack.	3. Dr. P. Das, Head Department of Extension Education, RIE, Bhubaneswar.
4. Dr. P.C. Dash, Former Reader in Education, RIE, Bhubaneswar.	4. Dr. J.S. Padhi, Reader in Education, RIE, Bhubaneswar.
5. Dr. B.K. Praharaj, Deputy Director, Directorate of Teacher Education & SCERT, Bhubaneswar.	5. Dr. B.N. Panda, Reader in Education, RIE, Bhubaneswar.
	6. Dr. P. Sahu, Sr. Lecturer in Education, RII, Bhubaneswar.

**APPENDIX – E****Test in English**

Time: 1 hour

Full marks 50

Answer all the questions in the space provided.

(Read the instructions carefully before answering the questions.)

1. Given below is a passage in which ten words are missing. Your teacher read the full passage to you. Listen carefully and write the words in the space provided. The passage will be read a second time. 5

Birds, which lay their \_\_\_\_\_ and bring up their \_\_\_\_\_ ones in the northern \_\_\_\_\_ of the globe, fly \_\_\_\_\_ in winter. Some go \_\_\_\_\_ a few hundred kilometers to \_\_\_\_\_ climate is \_\_\_\_\_. Others go right across the \_\_\_\_\_. For the same reason, \_\_\_\_\_ in the south fly \_\_\_\_\_. This is called migration.

2. a) Given below is a list of words. Put them into two groups taking into account their vowel sounds. 2

Fun, bird, rub, curd, but, third, shirt, shut

- b) Write three more words in each column whose initial sounds are similar to the sounds of the words given in each column. 3

A

B

Surethink

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Given below are some sentences. Arrange them in a meaningful sequence. 4
- They are called headwords.
  - In the dictionary the words explained are arranged in alphabetical order.
  - Sometimes two more headwords have the same spelling.
  - Each headwords is printed in bold type.
4. Read the passage carefully answer the questions that follow.

A tigress that thought as highly of the amenities of Muktesar as human beings did, took up her residence in the extensive forests adjoining the small settlement. Here she lived very happily on Sam bar, Karker, and wild pig, until she had the misfortune to have an encounter with a porcupine. In this encounter she lost an eye and got some fifty quills, varying in length from one to nine inches, embedded in the arm and under the pad of her right foreleg. Several of these quills after striking a bone had doubled back in the form of a U, the point and the broken end being close together, Suppurating sores formed where she endeavored to extract the quills with her teeth and while she was laying up in a thick patch of grass to cut as fodder for her cattle. At first the tigress took no notice, but when the women had cut the grass right up where she was laying, the tigress struck once, the blow crushing in the woman's skull. Death was instantaneous for, when found the following day, she was grasping her sickle with one hand and holding a tuft of grass,

which she was about to cut when struck, with the other. Leaving the women lying where she had fallen, the tigress limped off for a distance of over a mile took refuge in a little hollow under a fallen tree. Two days later a man came to chip firewood off his fallen tree and the tigress that was lying on the far side killed him also. The man fell across the tree and as he had removed his coat and shirt and the tigress had clawed his back when killing him, it is possible that the sight of blood trickling down his body as he hung across the bole of the tree first gave her kidea that he was something that she should satisfy her hunger with. However, that may be, leaving him she ate a small portion from his back. A day later she killed her third victim deliberately and without having received any provocation. Thereafter she became an established man-eater.

A. (i) what was the diet of the tigress before her encounter with the porcupine? 2x4

(ii) What effect did the encounter have on the tigress?

(iii) Why did the tigress kill the woman?

(iv) How did the tigress become a man-eater?

B.1. Find out the meaning of the following words in the context of passage; 2

- I) Encounter
- II) Embedded

2 Tick the appropriate meaning of the following words. 3

- |                  |                                                   |
|------------------|---------------------------------------------------|
| I) Instantaneous | a) sudden<br>b) immediate<br>c) accidental        |
| II) endeavored   | a) worked<br>b) attempted<br>c) acted             |
| II) suppurating  | a) forming pus<br>b) swelling<br>c) being painful |

C.1 Use the following expressions in sentences of your own 2

live in, take refuge in

2. Write the noun forms of the following words. 2

extract

receive

5. Read the following poem carefully and answer the questions that follow.

Stopping by Woods on a Snowy Evening

Whose woods these are I think I know,  
His house is in the village though,  
He will not see me stopping here  
To watch his woods fill up with snow

My little horse must think it queer  
To stop without a farmhouse near  
Between the woods and frozen lake  
The darkest evening of the year.

He gives his harness bells a shake  
To ask if there is some mistake.  
The only other sound's the sweep  
Of easy wind and downy flake.

The woods are lovely, dark and deep,  
But I have promises to keep,  
And miles to go before I sleep,  
And miles to go before I sleep.

- I) What does the poet mean by the expression "To ask if there is some mistake"? (What kind of mistake could there be?) 3
  - II) What does 'downy flake' refer to in the poem? 1
  - III) What does the word 'sleep' in the last line mean? 1
- 6 Describe, in about hundred words, the problems you face as a teacher of English. 5

7. Correct the following sentences, if necessary, and write them down in the space provided. **1X10**

- i) Teachers who show their academic merits will be encouraged to participate in this programme.
- ii) Dr. Das has good command over the language.
- iii) She delivered a male child yesterday.
- iv) His informations are correct.
- v) His uncle suggested him that he gets a job.
- vi) I hope it won't rain today.
- vii) The first five Japanese beautiful plastic toys are for sale.
- viii) If the earth falls to places what would become of me?
- ix) When I was a child, I would go swimming every summer.
- x) My mother who lives in Delhi is very affectionate

Name :

Name of the School :

Address

Teaching Experience :

# PRE-TEST

## ଭୂଗୋଳ

ସମୟ : ୪୫ ମିନିଟ

ପୂର୍ଣ୍ଣାଙ୍କ : ୫୦

ସମସ୍ତ ପ୍ରଶ୍ନର ଉତ୍ତର ଦିଅ

(ପ୍ରତ୍ୟେକ ପ୍ରଶ୍ନର ମୂଲ୍ୟ ପାଞ୍ଚ ନମ୍ବର)

୧. ଭୂମ୍ୟସ୍ଥାନ ପୂରଣ କର ।

- (କ) ବିଷୁବରେ ଶାନ୍ତିରେ ଦୁଇଟି ସମାନ୍ତରରେ ମଧ୍ୟରେ ଦୂରତ୍ୱ ପ୍ରାୟ ..... ନିଲୋମିଟର
- (ଖ) ଗ୍ରୀନ୍‌ଲ୍ୟାଣ୍ଡ ଦେଶ କଳିଙ୍ଗ ଦ୍ୱୀପରେ ଥିବା ..... ଦ୍ୱୀପ ।
- (ଗ) କୌଶସ୍ଥି ସ୍ଥାନର ଅନ୍ୟାନ୍ୟ ..... ଡିଗ୍ରୀରୁ ଅଧିକ ହୋଇନ ପାରେ ।
- (ଘ) ..... ଘଟିବୁ ଗ୍ରୀନ୍‌ଲ୍ୟାଣ୍ଡ ସମୟ କଣପଡେ ।

୨. ଭୁଲ୍ ଥିଲେ ଠିକ୍ କର ।

- (କ) ବିଷୁବ ଦୂର ଠାରୁ ମେରୁ ଆଡ଼କୁ ସମାନ୍ତରରେ ଦୂର ଗୁଡିକ କ୍ରମେ କ୍ରମେ ସାନ ହୋଇଥାଏ ।
- (ଖ) ବିଷୁବ ଦୂରର ଉତ୍ତରକୁ ୨୩°୨୦' ଦୂରରେ ଯେଉଁ ସମାନ୍ତରାଳ ଦୂର କଟକା କରାଯାଇଛି, ତାହା ମକରଙ୍କୁଟି କୁହାଯାଏ ।
- (ଗ) ବିଷୁବ ଦୂରର ୬୬.୫୦ ଦକ୍ଷିଣରେ ଯେଉଁ ଦୂର କଟକା କରାଯାଇଛି, ତାହା କ୍ରମେରୁ ଦୂର କୁହାଯାଏ ।
- (ଘ) ସମାନ୍ତରରେ ଗୁଡିକ ଗୋଟିଏ ଲେଖାଏଁ ସମ୍ପୂର୍ଣ୍ଣ ଦୂର ।
- (ଙ) ଦ୍ୱୀପମା ରେଖା ଗୁଡିକ ସମ୍ପୂର୍ଣ୍ଣ ଦୂର ଓ ସମାନ୍ତରରେ ଦୈର୍ଘ୍ୟ ଅସମାନ ।

୩. 'କ' ଓ 'ଖ' ଉଭୟ ବିଆଯାଇଥିବା ପୃଥିବୀର ଗୋଟିଏ ସହିତ 'ଖ' ଓ 'ଗ' ଉଭୟର ଉପଯୁକ୍ତ ଫଳାଫଳ ବ୍ୟାଖ୍ୟା କର ।

'କ' ଓ 'ଖ'

ଆବର୍ତ୍ତନ ଗତି

ବାର୍ଷିକ ଗତି

କ୍ରମେ ୨୧ ତାରିଖ

ମାର୍ଚ୍ଚ ୨୧ ତାରିଖ

ମେରୁ ଅକ୍ଷ

'ଖ' ଓ 'ଗ'

୨ ମାସ ତଳେ, ୨ ମାସ ଗାତ

ବର୍ଷର ଦୁଇଟି ସମାନ୍ତରାଳ

ବିନିମାତ୍ର ସମାନ୍ତରାଳ

ବିନିମାତ୍ର ସମାନ୍ତରାଳ

ରତ୍ନ ପରିବର୍ତ୍ତନ

ଆଲୋକ ମଞ୍ଚଳ

୪. ନିମ୍ନରେ ଦିଆଯାଇଥିବା ସମାନ୍ତର ଉତ୍ତର ଗୁଡିକ ମଧ୍ୟରୁ ଉପଯୁକ୍ତ ଉତ୍ତର ନିକଟରେ ଠିକ୍ (✓) ଚିହ୍ନ ଦିଅ ।

(କ) ହିମବାହ ଦ୍ୱାରା ସୃଷ୍ଟି ହେଉଥିବା କୃମିରୂପକ

(କ) ଗ୍ରୀଷ୍ମରେ ଉତ୍ପାଦିତ

(ଖ) ବାର୍ଷିକ ପ୍ରାୟ ଉତ୍ପାଦିତ

(ଗ) ହିମଶୈଳ ଉତ୍ପାଦିତ

(ଖ) ସମୁଦ୍ରରେ ଭାସୁଥିବା ବିରାଟ ବରଫ ଖଣ୍ଡ ଗୁଡିକ

(କ) ହିମବାହ ଉତ୍ପାଦିତ

(ଖ) ହିମଶୈଳ ଉତ୍ପାଦିତ

(ଗ) ଦୃଷ୍ଟାନ୍ତରେ ଉତ୍ପାଦିତ

(ଗ) କେଉଁ ଦୁଇଟି କାରଣ ଭାବରେ କଳବାୟୁ ନିୟନ୍ତ୍ରିତ କରେ

(କ) କ୍ରାନ୍ତୀୟ ବାତାବର୍ତ୍ତ

(ଖ) ପୃଥିବୀ ବାୟୁର ଝଟକାତ୍ୱ

(ଗ) ହିମାଳୟର ଅବସ୍ଥିତି

(ଘ) ମୌସୁମୀ ବାୟୁ ପ୍ରବାହ ଅନୁସାରେ ଭାବରେ

(କ) ଚିନୋଟି ଗତ ଅନୁକୂଳ ହୁଏ

(ଖ) କାରୋଟି ଗତ ଅନୁକୂଳ ହୁଏ

(ଗ) ଦୁଇଟି ଗତ ଅନୁକୂଳ ହୁଏ

(ଡ) ପତ୍ୟାକର୍ତ୍ତନଶୀଳ ମୌସୁମୀ ବାୟୁ କେଉଁମାସରେ ପ୍ରବାହିତ ହୁଏ

(କ) ଡିସେମ୍ବର ରୁ ଫେବୃଆରୀ

(ଖ) ଜୁନ୍ ରୁ ସେପ୍ଟେମ୍ବର

(ଗ) ଅକ୍ଟୋବର ରୁ ନଭେମ୍ବର

୫. 'କ' ଓ 'ଖ' ଉଭୟରେ ଦିଆଯାଇଥିବା ଅରଣ୍ୟ ଗୁଡ଼ିକୁ 'ଖ' ଉଭୟରେ ଦିଆଯାଇଥିବା ସ୍ଥାନ ଗୁଡ଼ିକ ସହ ସଂଯୋଗ କର ।

କ' ଉଭୟ

ବିରହଗିରି ଅରଣ୍ୟ

ମୌସୁମୀ ଅରଣ୍ୟ

କଣ୍ଟାବନ

ହେଡ଼ାଳ ବନ

ପାମିରୀ ଅରଣ୍ୟ

'ଖ' ଉଭୟ

ଓଡ଼ିଶା

ଆନ୍ଧ୍ରାପ୍ରଦେଶ

ଆନ୍ଧ୍ରପ୍ରଦେଶ

ତାମିଲ ଆନ୍ଧ୍ର

ପଞ୍ଜାବ

ରାଜସ୍ଥାନ

୬. ଭୁଲିଥିଲେ ଠିକ୍ କର ।

(କ) କୁଆରୀର ଉଚ୍ଚତା ଓ ସମୟ ମୁଖ୍ୟତଃ ସୂର୍ଯ୍ୟର ଅବସ୍ଥିତି ଓ ଗତି ଦ୍ୱାରା ନିୟନ୍ତ୍ରିତ ହୁଏ ।

(ଖ) ଚନ୍ଦ୍ରର ଆବର୍ଷଣ ଦ୍ୱାରା ଯେଉଁ କୁଆରୀ ସୃଷ୍ଟି ହୁଏ, ତାହାକୁ ପରୋକ୍ଷ କୁଆରୀ କୁହାଯାଏ ।

(ଗ) କଳଭାଗ ଓ ସୁଲଭାଗ ମଧ୍ୟରେ ଆକର୍ଷଣ ଯୋଗୁଁ ଯେଉଁ କୁଆରୀ ସୃଷ୍ଟି ହୁଏ, ତାହାକୁ ପ୍ରତ୍ୟକ୍ଷ କୁଆରୀ କୁହାଯାଏ ।

(ଘ) ପୂର୍ଣ୍ଣିମା ଓ ଅମାବାସ୍ୟା ଦିନ ସମୁଦ୍ରରେ ପ୍ରବଳ କୁଆରୀ ସୃଷ୍ଟି ହୁଏ ।

(ଡ) ସପ୍ତମା ଓ ଅଷ୍ଟମୀ ତିଥିରେ, ସମୁଦ୍ରରେ ଲଗୁନାପ ସୃଷ୍ଟି ହୁଏ ।

୭. ଗୋଟିଏ ଧାଡ଼ିରେ ଉତ୍ତର ଦିଅ ।

(କ) କେଉଁ ବାତାବର୍ତ୍ତ ଯୋଗୁଁ ବଙ୍ଗୋପସାଗରରେ ଝଡ଼ବାତ୍ୟା ସୃଷ୍ଟି ହୁଏ ।

(ଖ) କେଉଁ ବାତାବର୍ତ୍ତ ଯୋଗୁଁ ବାୟୁର ଗତି ଧୂର ଓ ଅଳ୍ପ ବୃଷ୍ଟି ହୁଏ ।

(ଗ) କେଉଁ ମହାଦେବ ନାଟିଶାତୋଷ ବାତାବର୍ତ୍ତ ବଳୟର ଅନ୍ତର୍ଭୁକ୍ତ ?

(ଘ) ସମୁଦ୍ରର କେଉଁ ଦିଗରେ କ୍ୱାଡ୍ରାସ ବାତାବର୍ତ୍ତ ସୃଷ୍ଟି ହୁଏ ।

(ଡ) କେଉଁ ମାସରେ କ୍ୱାଡ୍ରାସ ବାତାବର୍ତ୍ତ ସୃଷ୍ଟି ହୁଏ ।

୮. ଗୋଟିଏ ଧାଡ଼ିରେ ଉତ୍ତର ଦିଅ ।

(କ) ଏକ ତିରୀ ହାଲିମା ଅକ୍ଷରରେ ସମୟର ପାର୍ଯ୍ୟନ୍ତ କେତେ ମିନିଟ୍ ?

(ଖ) ଆନ୍ତର୍ଜାତିକ ତାରିଖରେଖା ଗୁଡ଼ିକର ମୁଖ୍ୟତଃ କେଉଁ ଭାଗ ମଧ୍ୟରେ କଟିତ ହୋଇଛି ?

(ଗ) ଆନ୍ତର୍ଜାତିକ ତାରିଖରେଖାର କେଉଁ ପାର୍ଶ୍ୱରେ ଏସିଆ ମହାଦେଶ ଅବସ୍ଥିତ ?

(ଘ) ଆନ୍ତର୍ଜାତିକ ତାରିଖର ପୂର୍ବ ଭାଗ କେଉଁ ହାଲିମାର ଶେଷ ସୀମା ?

(ଡ) କେତେବେଳେ ଆମକୁ ବ୍ୟାଲେଣ୍ଡରରେ ଦିନ ଓ ତାରିଖ ବଦଳାଇବାକୁ ପଡ଼େ ?

୯. ପ୍ରତ୍ୟେକ ପ୍ରଶ୍ନ ପାଇଁ ଚିହ୍ନଟି ସମ୍ଭାବ୍ୟ ଉତ୍ତର ଦିଆଯାଇଛି । ସେଥିରୁ ଠିକ୍ ଉତ୍ତରରେ ଠିକ୍ (✓) ଚିହ୍ନ ଦିଅ ।

(କ) ଶ୍ରୀନାଥ ସମୟ ଦିନ ୧୨ଟା ହୋଇଥିବା ବେଳେ ୯୦୦ ପୂର୍ବ ହାଲିମାରେ ସୂର୍ଯ୍ୟର ସମୟ କେତେ ?

(କ) ସନ୍ଧ୍ୟା ୬ଟା

(ଖ) ସକାଳ ୬ଟା

(ଗ) ରାତି ୮ଟା

(ଖ) କୌଣସି ଦେଶର ସ୍ଥାନୀୟ କେଉଁ ହାଲିମା ଦ୍ୱାରା ନିୟନ୍ତ୍ରିତ ହୁଏ

(କ) ମଧ୍ୟବର୍ତ୍ତୀ ଏକ ହାଲିମା ଦେଖା

(ଖ) ପୂର୍ବ ହାଲିମା

(ଗ) ପଶ୍ଚିମ ହାଲିମା

- (ଗ) ନ୍ୟୟକର ସ୍ଥାନୀୟ ସମୟ ଦିଲ୍ଲୀର ସ୍ଥାନୀୟ ସମୟ ଠାରୁ କଣ ଘଣ୍ଟା ପାଞ୍ଚ ମିନିଟ୍ ପଡୁଆ, କାରଣ  
 (କ) ନ୍ୟୟକ ଦିଲ୍ଲୀର ପୂର୍ବକୁ ଅବସ୍ଥିତ  
 (ଖ) ନ୍ୟୟକ ଦିଲ୍ଲୀର ପଶ୍ଚିମରେ ଅବସ୍ଥିତ  
 (ଗ) ନ୍ୟୟକ ଦିଲ୍ଲୀର ଉତ୍ତରରେ ଅବସ୍ଥିତ
- (ଘ) କୌଣସି ସ୍ଥାନ ସ୍ଥାନୀୟ ସମୟ ଠାରୁ ଏକ ଟିମ୍ବା ପୂର୍ବକୁ ଅବସ୍ଥିତ ଥିଲେ ସ୍ଥାନୀୟ ସମୟ ଦିଲ୍ଲୀରେ ସେ ସ୍ଥାନ ସମୟ  
 (କ) ତାରି ମିନିଟ୍ ଆଗୁଆ ହେବ  
 (ଖ) ତାରି ମିନିଟ୍ ପଡୁଆ ହେବ  
 (ଗ) ସମାନ ହେବ
- (ଙ) ସମୁଦ୍ରରେ ଯାତ୍ରା କଲାବେଳେ କାହା ସାହାଯ୍ୟରେ ସେହି ସ୍ଥାନର ସ୍ଥାନୀୟ ସମୟ କରାଯାଇଥାଏ  
 (କ) କ୍ରୋନୋମିଟର ଘଟି  
 (ଖ) ସୂର୍ଯ୍ୟ  
 (ଗ) ଚନ୍ଦ୍ର

୧୦. ନିମ୍ନରେ ଦିଆଯାଇଥିବା ଉତ୍ତର ଗୁଡ଼ିକ ମଧ୍ୟରେ ଠିକ୍ ଉତ୍ତରଟିରେ ଠିକ୍ (✓) ଚିହ୍ନ ଦିଅ ।

- (କ) ବୃହତ୍ ମାନ ବିଶିଷ୍ଟ ମାନଚିତ୍ରରେ ଗୋଟିଏ ଅଞ୍ଚଳକୁ ବିପରି ଦର୍ଶାଯାଇଥାଏ ।  
 (କ) ଗୋଟିଏ ବଡ଼ ଅଞ୍ଚଳକୁ ଛୋଟ ଆକାରରେ  
 (ଖ) ଗୋଟିଏ ଛୋଟ ଅଞ୍ଚଳକୁ ବଡ଼ ଆକାରରେ  
 (ଗ) ଗୋଟିଏ ଛୋଟ ଅଞ୍ଚଳକୁ ଛୋଟ ଆକାରରେ
- (ଖ) ବ୍ୟବହାରି ଦୃଷ୍ଟିକୋଣରୁ ମାନଚିତ୍ରକୁ କେତେ ଶ୍ରେଣୀରେ ବିଭକ୍ତ କରାଯାଇଥାଏ ?  
 (କ) ପ୍ରାକୃତିକ ମାନଚିତ୍ର ଓ ଭାବନୈତିକ ମାନଚିତ୍ର  
 (ଖ) ପ୍ରାକୃତିକ ଓ ସାଂସ୍କୃତିକ ମାନଚିତ୍ର  
 (ଗ) ପ୍ରାକୃତିକ, ସାଂସ୍କୃତିକ ଓ ଭାବନୈତିକ ମାନଚିତ୍ର
- (ଗ) ଭୂମି ଉପରେ ଦୂରଟି ସ୍ଥାନ ମଧ୍ୟରେ ଥିବା ଦୂରତା ସହିତ ମାନଚିତ୍ରରେ ସେହି ଦୂରଟି ସ୍ଥାନ ମଧ୍ୟରେ ଥିବା ଦୂରତାର ଅନୁପାତକୁ କ'ଣ କୁହାଯାଏ ?  
 (କ) ମାନ  
 (ଖ) ଭୂମି ଦୂରତା  
 (ଗ) ପ୍ରକୃତ ଦୂରତା
- (ଘ) ରିଲିଫ୍ ମାନଚିତ୍ରରେ କ'ଣ ପ୍ରଦର୍ଶିତ ହୋଇଥାଏ ?  
 (କ) ତାପ ଓ ତାପ  
 (ଖ) ଜଳବାୟୁ  
 (ଗ) ମାଳଭୂମି, ସମତଳ ଭୂମି
- (ଙ) ସାଂସ୍କୃତିକ ମାନଚିତ୍ରରେ କେଉଁ ତଥ୍ୟାବଳୀ ପ୍ରଦର୍ଶିତ ହୋଇଥାଏ ?  
 (କ) ବୃକ୍ଷ ଶିଳ୍ପ  
 (ଖ) ଉଦ୍ଭିଦ, ମୃତ୍ତିକା  
 (ଗ) ତାପ ଓ ତାପ



## POST - TEST

## ଭୂଗୋଳ

ସମୟ : ୪୫ ମିନିଟ

ପୃଷ୍ଠା : ୫୦

୧. ଶୂନ୍ୟସ୍ଥାନ ପୂରଣ କର ।

- (କ) ପୃଥିବୀ ତା'ର ମେରୁଦଣ୍ଡ ବାରିପଟେ ଯେଉଁ ଗତିରେ ଚାହାନ୍ତି ..... କୁହାଯାଏ ।  
 (ଖ) ପୃଥିବୀ ଯେଉଁ ପଥରେ ସୂର୍ଯ୍ୟକୁ ପରିକ୍ରମା କରେ ତାହାକୁ ..... କୁହାଯାଏ ।  
 (ଗ) ପୃଥିବୀର ମେରୁଦଣ୍ଡ କକ୍ଷତଳ ପ୍ରତି ..... କୋଣରେ ଆନତ ଥାଏ ।  
 (ଘ) ପୃଥିବୀର ଆବର୍ତ୍ତନ ବେଗ ..... ନିକଟରେ ସର୍ବାଧିକ ।  
 (ଙ) ପୃଥିବୀର ମେରୁଦଣ୍ଡ ତାହାର କକ୍ଷତଳ ସହିତ ..... ଡିଗ୍ରୀକୋଣ ସୃଷ୍ଟି କଲେ ଋତୁ ପରିବର୍ତ୍ତନ ହେବନାହିଁ ।

୨. ନିମ୍ନରେ ଦିଆଯାଇଥିବା ସମ୍ଭାବ୍ୟ ଉତ୍ତର ଗୁଡ଼ିକ ମଧ୍ୟରୁ ଠିକ୍ ଉତ୍ତରଟିରେ (✓) ଚିହ୍ନ ଦିଅ ।

(କ) ନିରକ୍ଷ ବୃତ୍ତ ପୃଥିବୀର କେନ୍ଦ୍ରରେ କେତେ ଡିଗ୍ରୀ କୋଣ ଅଙ୍କନ କରେ ?

- |                |     |
|----------------|-----|
| (୧) ୧୮୦ ଡିଗ୍ରୀ | ( ) |
| (୨) ୩୬୦ ଡିଗ୍ରୀ | ( ) |
| (୩) ୯୦ ଡିଗ୍ରୀ  | ( ) |
| (୪) ୦ ଡିଗ୍ରୀ   | ( ) |

(ଖ) ସ୍ବାଦିତ୍ ମଧ୍ୟରେ କକ୍ଷିତ ମୂଳ ଭାଗିନୀ କେଉଁ ସହରର ନିକଟବର୍ତ୍ତୀ ଅଟେ ?

- |              |     |
|--------------|-----|
| (୧) ମସୂରୀ    | ( ) |
| (୨) ଡାକିଙ୍ଗନ | ( ) |
| (୩) ଟୋକିଓ    | ( ) |
| (୪) ଲନ୍ଡନ    | ( ) |

(ଗ) ସମାକ୍ଷରେଖା ଗୁଡ଼ିକ ମଧ୍ୟରେ କେଉଁ ବୃତ୍ତ ବୃତ୍ତର ଅଟେ ?

- |                   |     |
|-------------------|-----|
| (୧) ନିରକ୍ଷବୃତ୍ତ   | ( ) |
| (୨) ରୂମେରୁବୃତ୍ତ   | ( ) |
| (୩) ସୂମେରୁବୃତ୍ତ   | ( ) |
| (୪) କର୍କଟକ୍ରାନ୍ତି | ( ) |

(ଘ) କେଉଁ ସ୍ଥାନ ବିଶୁଦ୍ଧ ବୃତ୍ତର କେତେ ଉତ୍ତରକୁ କେତେ ଦକ୍ଷିଣକୁ ଅବସ୍ଥିତ କାହାନ୍ତିବା କଣାପଡେ ?

- |                  |     |
|------------------|-----|
| (୧) ଭାରିନା ଗୋଖା  | ( ) |
| (୨) ସମାକ୍ଷ ଗୋଖା  | ( ) |
| (୩) ବିଶୁଦ୍ଧ ଗୋଖା | ( ) |
| (୪) ମୂଳ ଭାରିନା   | ( ) |

(ଙ) କୌଣସି ଦୂରଦୂରୁ ସାଧାରଣତଃ କିପରି ପ୍ରକାଶ କରାଯାଏ ?

- |                |
|----------------|
| (୧) କିଲୋମିଟର   |
| (୨) ମିଟର       |
| (୩) ଡିଗ୍ରୀ     |
| (୪) ସେଣ୍ଟିମିଟର |

୩ ଗୋଟିଏ ଧାଡ଼ିରେ ଉତ୍ତର ଦିଅ ।

(କ) କୌଣସି ଦେଶର ସ୍ଥାନୀୟ ସମୟ କାହାକୁ କୁହାଯାଏ ।

ଉ :

(ଖ) କୌଣସି ଦେଶର ପ୍ରମାଣ ସମୟ କାହାକୁ କୁହାଯାଏ ।

ଉ :

(ଗ) ଆନ୍ତର୍ଜାତିକ ତାରିଖରେଖା କାହାକୁ କୁହାଯାଏ ?

ଉ :

(ଘ) କୌଣସି ଦେଶର ଏକାଧିକ ସ୍ଥାନୀୟ ସମୟ କାହିଁକି ପ୍ରଚଳିତ ହୁଏ

ଉ :

(ଙ) ଅକ୍ଷାଂଶ ସମାନ୍ତରେଖା ମଧ୍ୟରେ ପାର୍ଥକ୍ୟ କ'ଣ ?

ଉ :

୪ ଗୋଟିଏ ଧାଡ଼ିରେ ଭୌଗୋଳିକ କାରଣ ଦର୍ଶାଅ ।

(କ) ସୂର୍ଯ୍ୟ ଅପେକ୍ଷା ଚନ୍ଦ୍ରର କୁଆର ସୃଷ୍ଟି କରିବା ଶକ୍ତି ଅଧିକ ।

ଉ :

(ଖ) ପୃଥିବୀର ଗୋଟିଏ ନିର୍ଦ୍ଦିଷ୍ଟ ସ୍ଥାନରେ ପ୍ରତ୍ୟକ୍ଷ ବା ପରୋକ୍ଷ କୁଆର ହୁଏକାହିଁ ।

ଉ :

(ଗ) ପୃଷ୍ଠମା ଓ ଅମାବାସ୍ୟାରେ ସମୁଦ୍ରରେ ପ୍ରବଳ କୁଆର ହୁଏ ।

ଉ :

(ଘ) ପୃଥିବୀର କୌଣସି ସ୍ଥାନରେ ପ୍ରତ୍ୟକ୍ଷ କୁଆର ହେବା ସମୟରେ ଠିକ୍ ତାର ବିପରୀତ ପାର୍ଶ୍ୱରେ ପରୋକ୍ଷ କୁଆର ସୃଷ୍ଟି ହୁଏ ।

ଉ :

(ଙ) ଶୀତ ପ୍ରଧାନ ନାଟିଶାତୋଷ୍ଠ ଅଞ୍ଚଳର ନଦୀ ମୁହାଣ ବରଫମୁକ୍ତ ରହିଥାଏ ।

ଉ :

୫ ଗୋଟିଏ ଧାଡ଼ିରେ ଉତ୍ତର ଦିଅ ।

(କ) ବାତାବର୍ତ୍ତ କାହାକୁ କୁହାଯାଏ ।

ଉ :

(ଖ) କେଉଁ ଦୁଇଟି ବାୟୁର ସମ୍ମିଶ୍ରଣରେ ନାଟିଶାତୋଷ୍ଠ ବାତାବର୍ତ୍ତ ସୃଷ୍ଟି ହୁଏ ।

ଉ :

(ଗ) ଟାଇଫୁନ୍ ଏକ କେଉଁ ପ୍ରକାର ବାତାବର୍ତ୍ତ ।

ଉ :

(ଘ) ଭାରତ ସହାୟାଗରରେ କେଉଁ ବାତାବର୍ତ୍ତ ଦେଖାଯାଏ ।

ଉ :

(ଙ) ପ୍ରତାପ ବାତାବର୍ତ୍ତ କାହାକୁ କୁହାଯାଏ ।

ଉ :

୭. ଭୌଗୋଳିକ କାରଣ ଦର୍ଶାଅ ।

(କ) ଭାରତରେ କାନୁୟାରା ଶୀତଳତମ ମାସ ।

ଉ :

(ଖ) ତାମିଲନାଡୁର ପୂର୍ବ ଉପକୂଳ ଅଞ୍ଚଳରେ ଶୀତ ଦିନେ ବର୍ଷା ହୁଏ ।

ଉ

(ଗ) ଭାରତରେ ବାରୋଟି ଋତୁ ଅନୁଭୂତ ହୁଏ ।

ଉ .

(ଘ) ଆସାମରେ ସର୍ବାଧିକ ବୃଷ୍ଟି ହୁଏ ।

ଉ

(ଙ) ଗ୍ରୀଷ୍ମଋତୁରେ ଭାରତର ଉତ୍ତର ଭାଗରେ ଦକ୍ଷିଣ ଭାଗ ଅପେକ୍ଷା ଅଧିକ ଗରମ ଅନୁଭୂତ ହୁଏ ।

ଉ .

୭. ନିମ୍ନରେ ଦିଆଯାଇଥିବା ଉତ୍ତର ଗୁଡ଼ିକ ମଧ୍ୟରୁ ଠିକ୍ ଉତ୍ତରଟିରେ (✓) ଚିହ୍ନ ଦିଅ ।

(କ) ଚିରହରିତ୍ ଅରଣ୍ୟ କେତେ ବୃଷ୍ଟିପାତ ଅଞ୍ଚଳରେ ବେଖାଯାଏ ।

(୧) ୨୦୦ ସେ.ମି.ରୁ ଅଧିକ ( )

(୨) ୧୦୦ ରୁ ୨୦୦ ସେ.ମି. ( )

(୩) ୮୦ ସେ.ମି. ( )

(୪) ୧୦୦ ସେ.ମି. ( )

(ଖ) ମୌସୁମୀ ଅରଣ୍ୟ ଭାରତର କେଉଁ ରାଜ୍ୟରେ ଅଧିକ ବେଖାଯାଏ ।

(୧) ଆନ୍ଧ୍ରପ୍ରଦେଶ ( )

(୨) କେରଳ ( )

(୩) ଓଡ଼ିଶା ( )

(୪) ବିହାର ( )

(ଗ) ହେଡ଼ାଳବନ ଭାରତର କେଉଁ ରାଜ୍ୟରେ ବେଖାଯାଏ ।

(୧) ଗୁଜୁରାଟ ( )

(୨) ରାଜସ୍ଥାନ ( )

(୩) ପଞ୍ଜାବ ( )

(୪) ତାମିଲନାଡୁ ( )

(ଘ) ନିମାଲୟ ପାଦଦେଶରୁ କେତେ ମିଟର ଉପରକୁ କୌଣସି ଉର୍ଦ୍ଧ୍ବ ଦେଖାଯାଏ ନାହିଁ ।

(୧) ୧୮୦୦ ମିଟର ( )

(୨) ୨୮୦୦ ମିଟର ( )

(୩) ୩୮୦୦ ମିଟର ( )

(୪) ୪୮୦୦ ମିଟର ( )

(ଙ) କଣ୍ଟାବନ ସାଧାରଣତଃ କେତେ ବୃଷ୍ଟିପାତ ଅଞ୍ଚଳରେ ବେଖାଯାଏ ।

(୧) ୧୦୦ ରୁ ୨୦୦ ସେ.ମି. ( )

(୨) ୮୦ ସେ.ମି. ରୁ କମ୍ ( )

(୩) ୧୦୦ ସେ.ମି.ରୁ କମ୍ ( )

(୪) ୨୦୦ ସେ.ମି.ରୁ କମ୍ ( )

୮. ଗ/ଚ ହୋଇଥିବା ପଦକୁ ନ ବଦଳାଇ ଭ୍ରମ ସଂଶୋଧନ କର ।

- (କ) ସମତାପ ରେଖାଗୁଡ଼ିକ ମାନଚିତ୍ରରେ ପାଖାପାଖି ଦର୍ଶାଯାଇଥିଲେ ବାୟୁ ତାପରେ ପାର୍ଯ୍ୟନ୍ତ କମ୍ ହୋଇଥାଏ ।  
 (ଖ) ସମତାପ ରେଖା ଗୁଡ଼ିକ ମଧ୍ୟରେ ବ୍ୟବଧାନ ଅଧିକ ହୋଇଥିଲେ ତାପରେ ପାର୍ଯ୍ୟନ୍ତ ଅଧିକ ହୋଇଥାଏ ।  
 (ଗ) ଆକାର ରେଖା ଗୁଡ଼ିକ ସାହାଯ୍ୟରେ ଡ୍ରୋଟ୍ ଡ୍ରୋଟ୍ ଭୂମି ରୂପ ଗୁଡ଼ିକ ଦର୍ଶାଯାଇଥାଏ ।  
 (ଘ) (↑) ଡ୍ରାଫ୍ଟଲେସନ୍ ପଏଣ୍ଟ ସାହାଯ୍ୟରେ ଗୋଟିଏ ସ୍ଥାନର ଉଚ୍ଚତା ଦର୍ଶାଯାଇଥାଏ ।  
 (ଚ) ନିମ୍ନ ଅକ୍ଷାଂଶ ମଣ୍ଡଳ ପାର୍ଶ୍ୱ ମାନଚିତ୍ରରେ ହଳଦିଆ ରଙ୍ଗ ବ୍ୟବହାର କରାଯାଏ ।

୯. ଶୂନ୍ୟସ୍ଥାନ ପୂରଣ କର ।

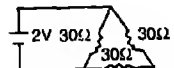
- (କ) ଗ୍ରୀଷ୍ମ କାଳରେ ଉପରୁ ତଳକୁ ଦର୍ଶାଯାଇଥିବା ରେଖାକୁ ..... ରେଖା କୁହାଯାଏ ।  
 (ଖ) ଗ୍ରୀଷ୍ମ କାଳରେ ତଳ ଭାଗରେ ଅନୁପ୍ରସ୍ଥ ରେଖା ଓ ଉତ୍ତମ ରେଖା ପରସ୍ପର କ୍ରେବ କରୁଥିବା ବିନ୍ଦୁକୁ ..... କୁହାଯାଏ ।  
 (ଗ) ଦେଶ ଓ ମହାଦେଶ ମାନଙ୍କର ଜନସଂଖ୍ୟା ତଥ୍ୟ ..... ସାହାଯ୍ୟରେ ପ୍ରଦର୍ଶିତ ହୋଇପାରିବ ।  
 (ଘ) ଶାସ୍ତିତରାଙ୍କେ ଅଙ୍କିତ ଗ୍ରହଚିତ୍ରକୁ ..... କୁହାଯାଏ ।  
 (ଚ) ଜନସଂଖ୍ୟା ..... ମାନଚିତ୍ରରେ ପ୍ରଦର୍ଶିତ ହୋଇଥାଏ ।

୧୦. ନିମ୍ନରେ ଦିଆଯାଇଥିବା ଉତ୍ତର ଗୁଡ଼ିକ ମଧ୍ୟରେ ଠିକ୍ ଉତ୍ତରଟିରେ ଠିକ୍ (✓) ଚିହ୍ନ ଦିଅ ।

- (କ) ବୃହତ ମାନ ବିଶିଷ୍ଟ ମାନଚିତ୍ରରେ ଗୋଟିଏ ଅକ୍ଷରକୁ କିପରି ଦର୍ଶାଯାଇଥାଏ ?  
 (୧) ଗୋଟିଏ ବଡ଼ ଅକ୍ଷରକୁ ଡ୍ରୋଟ୍ ଆକାରରେ ( )  
 (୨) ଗୋଟିଏ ଡ୍ରୋଟ୍ ଅକ୍ଷରକୁ ବଡ଼ ଆକାରରେ ( )  
 (୩) ଗୋଟିଏ ଡ୍ରୋଟ୍ ଅକ୍ଷରକୁ ଡ୍ରୋଟ୍ ଆକାରରେ ( )
- (ଖ) ବ୍ୟବହାରିକ ଦୃଷ୍ଟିକୋଣରୁ ମାନଚିତ୍ରକୁ କେତେ ଶ୍ରେଣୀରେ ବିଭକ୍ତ କରାଯାଇଥାଏ ?  
 (୧) ପ୍ରାକୃତିକ ମାନଚିତ୍ର ଓ ରାଜନୈତିକ ମାନଚିତ୍ର ( )  
 (୨) ପ୍ରାକୃତିକ ଓ ସାଂସ୍କୃତିକ ମାନଚିତ୍ର ( )  
 (୩) ପ୍ରାକୃତିକ, ସାଂସ୍କୃତିକ ଓ ରାଜନୈତିକ ମାନଚିତ୍ର ( )
- (ଗ) ଭୂମି ଉପରେ ଦୂରଟି ସ୍ଥାନ ମଧ୍ୟରେ ଥିବା ଦୂରତା ସହିତ ମାନଚିତ୍ରରେ ସେହି ଦୂରଟି ସ୍ଥାନ ମଧ୍ୟରେ ଥିବା ଦୂରତାର ଅନୁପାତକୁ କ'ଣ କୁହାଯାଏ ।  
 (୧) ମାଳ ( )  
 (୨) ଭୂମି ଦୂରତା ( )  
 (୩) ପ୍ରକୃତ ଦୂରତା ( )
- (ଘ) ଭିଲିଙ୍ଗ୍ ମାନଚିତ୍ରରେ କ'ଣ ପ୍ରଦର୍ଶିତ ହୋଇଥାଏ ?  
 (୧) ତାପ ଓ ତାପ ( )  
 (୨) ଜଳବାୟୁ ( )  
 (୩) ମାଳଭୂମି, ସମତଳଭୂମି ( )
- (ଚ) ସାଂସ୍କୃତିକ ମାନଚିତ୍ରରେ କେଉଁ ତଥ୍ୟାବଳୀ ପ୍ରଦର୍ଶିତ ହୋଇଥାଏ ।  
 (୧) କୃଷି ଶିଳ୍ପ ( )  
 (୨) ଉଦ୍ଭିଦ, ମୃତ୍ତିକା ( )  
 (୩) ତାପ ଓ ତାପ ( )

# ଫିଜିକ୍ସ ୧୧ QUESTIONS

- ୧ । ଡ୍ରାମାଟିକ୍ ପ୍ରଦର୍ଶନୀ ପ୍ରଦାନ କରାଯାଇଥିବା କାର୍ଯ୍ୟକାରୀ ପଦାର୍ଥର ନାମ କ'ଣ ?
- ୨ । ବାୟୁର ମାଧ୍ୟମରେ ଥିବା ଗୋଲକାର ନାମ — — — ଓ — — — ଅଟେ ।
- ୩ । ଗୋଟିଏ ମୌଳିକର ଦୁଇଟି ଆଲୋକୋପର ବସ୍ତୁ ସଂଖ୍ୟାର ଅନୁପାତ ୫ : ୨ ହେଲେ ନିଉଟ୍ରନ୍ ସଂଖ୍ୟାର ଅନୁପାତ କେତେ ?
- ୪ । ଇଲେକ୍ଟ୍ରନ୍ ସଂରଚନା ପାଇଁ ଆବଶ୍ୟକ ହେଉଥିବା ସବୁ ସେଲ ସଂଖ୍ୟା — — — ଅଟେ । (1,2,3,4)
- ୫ । ଏହି ମୌଳିକର ୩ ମେକାଲେ ୨ ଟି ଇଲେକ୍ଟ୍ରନ୍ ଅଛି । ମୋଟି ମୌଳିକର ପରମାଣୁ କ୍ରମାଙ୍କ ଲେଖ ।
- ୬ । ଶକ୍ତିଧାରଣ କ୍ଷମତା ଅନୁଯାୟୀ ପରମାଣୁରେ ଥିବା ସବୁସେଲକୁ ଚାନ୍ଦୁ ଧାନ କ୍ରମରେ ସଜାଇ ଲେଖ ।
- ୭ । ଗୋଟିଏ ମୋଡିୟମ ପରମାଣୁର କମ୍ପୁଟ୍ ଗ୍ରାମ ଏକକରେ କେତେ ?
- ୮ । 22 ଗ୍ରାମ ଅକ୍ସାଇଡ଼ରେ ମୋଟ ଇଲେକ୍ଟ୍ରନ୍ ସଂଖ୍ୟା କେତେ ନିର୍ଦ୍ଧାରଣ କର ।
- ୯ । ଏମୋନିଆ ଓ ମିଥେନ୍ ଯୋଗକର ବନ୍ଧ ଗଠନରେ କି ପାର୍ଥକ୍ୟ ପରିଲକ୍ଷିତ ହୁଏ ?
- ୧୦ । A ଓ B ନାମକ ଦୁଇଟି ମୌଳିକର ପରମାଣୁ କ୍ରମାଙ୍କ ଯଥାକ୍ରମେ 36 ଓ 19 । ସେମାନଙ୍କ ମଧ୍ୟରେ ଅଧିକ ପ୍ରତିକ୍ରିୟାଶୀଳ ମୌଳିକର ନାମ ଲେଖ ।
- ୧୧ । ପର୍ଯ୍ୟାୟ ସାରଣୀରେ ଲାଇନାଇଡ୍ ଓ ଆର୍ଜିନାଇଡ୍ ସହ ଅନ୍ୟ ଚଉଦଟି ମୌଳିକ ଅଲଗା ଦୁଇ ଧାଡ଼ିରେ ରଖାଯାଇଛି କାହିଁକି ?
- ୧୨ । ମିମା ମଂଚାୟକ ସେଲରେ ଗନ୍ଧକାମ୍ବର ସାନ୍ଦ୍ରତା 1.29 ରୁ ବୃଦ୍ଧିକରି ଅଧିକ ଭୋଲଟେଜ୍ ପାଇବାରେ ଅସୁବିଧା ଦର୍ଶାଅ ।
- ୧୩ । ଗୋଟିଏ ମୋଲ୍ ଇଲେକ୍ଟ୍ରନ୍ ଚାର୍ଜ ସହ ଗୋଟିଏ ପାରାଦୂର ଚାର୍ଜ ପ୍ରାୟ ସମାନ । ବୁଝାଅ ।
- ୧୪ । ଧାତବ କ୍ଲୋରାଇଡ୍ ଜଳରେ ସାଧାରଣ ଭାବେ ଅପଦ୍ଧିତ ହୁଏନାହିଁ କାହିଁକି ?
- ୧୫ । କାର୍ବନ୍ର କାଟିନେଶନ ଗୁଣ କେଉଁ ଯୋଗୁଁ ସମ୍ଭବ ହୋଇଥାଏ ?
- ୧୬ । 0.71 ଗ୍ରାମ୍ କ୍ଲୋରିନ୍ ଗ୍ୟାସ୍ରେ କେତୋଟି କ୍ଲୋରିନ୍ ପରମାଣୁ ରହିପାରିବ ?
- ୧୭ । ଆୟୋଡିନ୍ର ଯୋଜ୍ୟତା କେତେ ?
- ୧୮ । ଦୁଇ ମିଟର ବ୍ୟାସାର୍ଦ୍ଧ ବିଶିଷ୍ଟ ଏକ ବୃତ୍ତାକାର ପଥରେ ଗତି କରୁଥିବା ଗୋଟିଏ ବସ୍ତୁ କେନ୍ଦ୍ରରେ  $\frac{\pi}{2}$  କୋଣ ସୃଷ୍ଟି କରେ । ଏହାର ବିସ୍ଥାପନ କେତେ ନିର୍ଣ୍ଣୟ କର ?
- ୧୯ । ସମଗତିରେ ଯାଉଥିବା ବସ୍ତୁଟିର ସମୟ - ବେଗ ଲେଖ ସମୟ ଅକ୍ଷ ପ୍ରତି — — — ।
- ୨୦ । ଦୁଇଟି ସମାନ ବଲର ପରିମାଣ ବଳ ସେମାନଙ୍କ ସହିତ ସମାନ ହୋଇ ପ୍ରଯୁକ୍ତ ବଳଦ୍ୱୟ ମଧ୍ୟରେ ଥିବା କୋଣର ପରିମାଣ କେତେ ?
- ୨୧ । କେଉଁ ପରିମାଣର ବଳ ୧ କି ଗ୍ରାମ୍ ବସ୍ତୁର ବିଶିଷ୍ଟ ବସ୍ତୁରେ ୧ ମିଟର / ସେ ମି ଡିଗ୍ରୀ ସ୍ପଷ୍ଟିକରେ ତାହାକୁ — — — କ୍ରହାଯାଏ ?
- ୨୨ । ଆବ ପରମାଣୁ କ'ଣ ? କୁହାଯାଉଥିବା ପରମାଣୁର ନାମ ଲେଖ ।
- ୨୩ । ପରିବାହୀର ତାପମାତ୍ରା ବୃଦ୍ଧିତଲେ ପ୍ରତିରୋଧ — — — ହୁଏ ।
- ୨୪ । ଗୋଟିଏ ତାଲମାମୋରେ  $E = 45$  କୋରସି ଅବସ୍ଥାରେ ପ୍ରେରିତ ବିଦ୍ୟୁତ୍ କାହକ ବଳ  $E_0 =$  ସର୍ବୋଚ୍ଚ ପ୍ରେରିତ ବିଦ୍ୟୁତ୍ ବାହକ ବଳ  $() =$  ତୁଲ୍ୟକାରୀ ବଳରେଖା ଓ କୃତ୍ରିମ ସମତଳ ସହ ସୃଷ୍ଟି କରୁଥିବା କୋଣ ହେଲେ,  $E_0 = \cos \theta$  ବୁଝାଅ ।
- ୨୫ । ୬୦ ଡିଗ୍ରୀର ଏକ ବଲ୍ ୧୨୦ ଡିଗ୍ରୀରେ ଜଳୁଥିଲେ ଏକ ସେକେଣ୍ଡରେ କେତୋଟି ଇଲେକ୍ଟ୍ରନ୍ ପିଲାମେଣ୍ଟ ମଧ୍ୟରେ ପ୍ରବେଶ କରିବ ନିର୍ଣ୍ଣୟ କର ।  $P = \frac{V}{I}$
- ୨୬ । ୪୦ ଡିଗ୍ରୀର ଏକ ବଲ୍ ୩୨୦ ଡିଗ୍ରୀ କାର୍ଯ୍ୟ କରିବା ପାଇଁ କେତେ ସମୟ ଆବଶ୍ୟକ ?
- ୨୭ । ସଂଚାରଣ କ୍ଷତି କ'ଣ ବୁଝାଅ ?
- ୨୮ । ନିମ୍ନରେ ଦିଆ ବିଦ୍ୟୁତ୍ ପରିପଥରେ ପ୍ରବାହିତ ବିଦ୍ୟୁତ୍ ସ୍ରୋତର ପରିମାଣ ନିର୍ଣ୍ଣୟ କର ?
- ୨୯ । ୨୦ ଓମ୍ ପ୍ରତିରୋଧ ବିଶିଷ୍ଟ ପରିବାହୀକୁ ଏକ ବୃତ୍ତାକାର ପରିପଥରେ ପରିଣତ କଲେ ଦୁଇ ପ୍ରାନ୍ତରେ ଥିବା ସମୂହ ପ୍ରତିରୋଧ କେତେ ନିର୍ଣ୍ଣୟ କର ?
- ୩୦ । କାର୍ବନ୍ରୁ ଜନ୍ମିତ ଗ୍ରାଫାଇଟ୍ ଓ ଡାଇମଣ୍ଡ ଦୁଇଟି ମଧ୍ୟରେ ଗୁଣ ଓ ଧର୍ମର ପାର୍ଥକ୍ୟ କାହିଁକି ଦେଖାଯାଏ ?



PRE-TEST  
Subject : Mathematics

ନିମ୍ନରେ କେତୋଟି ପ୍ରଶ୍ନ ସହିତ ତାହାର ସମାଧାନ ଉତ୍ତର ଦିଆଯାଇଅଛି । ଯେଉଁଟିକୁ ଠିକ୍ ବୋଲି ଧାର୍ଯ୍ୟକରି ତା ବାମ ପାଖରେ ଠିକ୍ ଚିହ୍ନ (✓) ଦିଅନ୍ତୁ ।

୧. ଗୋଟିଏ ସମବାହୁ ତ୍ରିଭୁଜର ବାହୁ 'a' ଏକକ ହେଲେ ଏକ ଚକ୍ରରେ ଏକ ବୃତ୍ତ ଆବଲମ୍ବିତ ହେଲେ ତା'ର କ୍ଷେତ୍ରଫଳ ହେବ -

(କ)  $\frac{\pi}{2} a^2$

(ଖ)  $\frac{\pi}{8} a^2$

(ଗ)  $\frac{\pi}{4} a^2$

(ଘ)  $\frac{\pi}{12} a^2$

୨. କୌଣସି ବୃତ୍ତରେ 10 ସେ.ମି. ଧାରୀତ ଗାଢ଼ ଉପରେ ଅବଲମ୍ବିତ ବୃତ୍ତକଳାର କ୍ଷେତ୍ରଫଳ 7୦ ବର୍ଗ ସେ.ମି. ହେଲେ ବୃତ୍ତରେ 15" ଘୋଡ଼ା ବିଶିଷ୍ଟ ବୃତ୍ତକଳାର କ୍ଷେତ୍ରଫଳ -

(କ) 75 ବର୍ଗ ସେ.ମି.

(ଖ) 77 ବର୍ଗ ସେ.ମି.

(ଗ) 65 ବର୍ଗ ସେ.ମି.

(ଘ) 80 ବର୍ଗ ସେ.ମି.

୩. 1 ଡିଗ୍ରିଆନୁର ମୂଳ୍ୟ

(କ)  $\left(\frac{360}{2\pi}\right)^{\circ}$

(ଖ)  $\left(\frac{2\pi}{360}\right)^{\circ}$

(ଗ)  $\left(\frac{180}{2\pi}\right)^{\circ}$

(ଘ)  $\left(\frac{2\pi}{180}\right)^{\circ}$

୪. ସିଲିଣ୍ଡରର ବକ୍ରତଳର କ୍ଷେତ୍ରଫଳ ନିର୍ଣ୍ଣୟ କରିବାର ସୂତ୍ର ହେଲା -

(କ)  $\pi rh$

(ଖ)  $2\pi rh$

(ଗ)  $2\pi r^2h$

(ଘ)  $\pi r^2h$

୫. ଗୋଟିଏ ନିଜା ସିଲିଣ୍ଡରର ବ୍ୟାସାର୍ଦ୍ଧ ଦୈର୍ଘ୍ୟ 7 ସେ.ମି. ଓ ଉଚ୍ଚତା 10 ସେ.ମି. ହେଲେ, ତାହାର ଆୟତନର ପରିମାପ ହେବ -

(କ) 1540 ଘ. ସେ.ମି.

(ଖ) 3080 ଘ. ସେ.ମି.

(ଗ) 4620 ଘ. ସେ.ମି.

(ଘ) 6160 ଘ. ସେ.ମି.

୬. କୋନ୍ ଆକାରରେ ଥିବା ଏକ ଆନତବାତ ବୃତ୍ତର ପରିଧି 44 ଫୁଟ ଏବଂ ଉଚ୍ଚତା 12 ଫୁଟ । ପ୍ରତି ବସ୍ତାରେ 5.5 ଘନଫୁଟ ଆନ ରହି ପାରୁଥିଲେ ସେ ଆନତର ଉତ୍ତରା ମାଟି କେତୋଟି ବସ୍ତା ଦରକାର ହେବ ?

(କ) 7

(ଖ) 110

(ଗ) 48

(ଘ) 112

୭. ୧ ସେ.ମି. ବ୍ୟାସାର୍ଦ୍ଧ ବୃତ୍ତର ଘୋଡ଼ାକର ଉତ୍ତରା ସମତଳର କ୍ଷେତ୍ରଫଳ ହେବ

(କ) 308(ସେ.ମି.)<sup>2</sup>

(ଖ) 462(ସେ.ମି.)<sup>2</sup>

(ଗ) 426(ସେ.ମି.)<sup>2</sup>

(ଘ) 616(ସେ.ମି.)<sup>2</sup>

୮. 'r' ବ୍ୟାସାର୍ଦ୍ଧ ବୃତ୍ତର ଘୋଡ଼ାକର ଉତ୍ତରା ସମତଳର କ୍ଷେତ୍ରଫଳ

(କ)  $3/4 \pi r^2$

(ଖ)  $2/3 \pi r^2$

(ଗ)  $4/3 \pi r^2$

(ଘ)  $3/2 \pi r^2$

୯. ନିମ୍ନଲିଖିତ ବହୁପଦୀ ରାଶିମାନଙ୍କ ମଧ୍ୟରୁ କେଉଁଟି ପଲିନୋମିଆଲ୍ ଅଟେ -

(କ)  $x + 1/x$

(ଖ)  $\sqrt{2}x^2 - 3x^2 + 1/2$

(ଗ)  $\sqrt{x} + 5$

(ଘ)  $x + 2\sqrt{x} + 1$

୧୦.  $x^2 - 8x + 15 =$

(କ)  $(x+5)(x+3)$

(ଖ)  $(x+5)(x-3)$

(ଗ)  $(x-5)(x+3)$

(ଘ)  $(x-5)(x-3)$

୧୧. (3, -4) ବିନ୍ଦୁଟି କେଉଁ ଛାତ୍ରାଞ୍ଚ (Q)ରେ ଅବସ୍ଥିତ ?

- (କ) Q<sub>1</sub> ରେ ଅବସ୍ଥିତ (ଗ) Q<sub>3</sub>ରେ ଅବସ୍ଥିତ  
(ଖ) Q<sub>2</sub>ରେ ଅବସ୍ଥିତ (ଘ) Q<sub>4</sub>ରେ ଅବସ୍ଥିତ

୧୨. Log 10000 ର ମାନ ହେବ -

- (କ) 1 (ଖ) 2 (ଗ) 3 (ଘ) 4

୧୩. କୌଣସି ସଂଭାଗର ନିମ୍ନ ସୀମା ୧୦ ଓ ଉର୍ଦ୍ଧ୍ୱ ସୀମା ୨୦ ହେଲେ ସଂଭାଗର ମଧ୍ୟବିନ୍ଦୁ ହେବ

- (କ) 1 (ଖ) 5 (ଗ) 15 (ଘ) 100

୧୪. ଚଳରାଶିମାନଙ୍କର ଆପେକ୍ଷିକ ମୂଲ୍ୟ ପରିବର୍ତ୍ତନକୁ -

- (କ) ସୁ ବଳ କୁହାଯାଏ (ଖ) ଚଳନ କୁହାଯାଏ (ଗ) ଅନୁପାତ କୁହାଯାଏ (ଘ) ସମାନପାତ କୁହାଯାଏ

୧୫.  $\frac{a}{b} = \frac{c}{d} \Rightarrow \frac{b}{a} = \frac{d}{c}$  ପ୍ରକ୍ରିୟାକୁ -

- (କ) ବିପରୀତ ପ୍ରକ୍ରିୟା କୁହାଯାଏ (ଖ) ଏକାନ୍ତର ପ୍ରକ୍ରିୟା କୁହାଯାଏ  
(ଗ) ଯୋଗ ପ୍ରକ୍ରିୟା କୁହାଯାଏ (ଘ) ସଂଯୋଗ ପ୍ରକ୍ରିୟା କୁହାଯାଏ

୧୬. ଦୁଇ ଅଙ୍କ ବିଶିଷ୍ଟ ଗୋଟିଏ ସଂଖ୍ୟା ତାହାର ଅଙ୍କ ଦ୍ୱୟର ଯୋଗଫଳର 4 ଗୁଣ । ଯଦି ସଂଖ୍ୟାଟିର ଦଶମାନୁସ୍ଥାନର ସଂଖ୍ୟାକୁ ୧୦ ଗୁଣିବାକୁ ହେବ ତେବେ ସଂଖ୍ୟାଟି କେତେ ହେବ ?

- (କ) 84 (ଖ) 48 (ଗ) 44 (ଘ) 40

୧୭.  $ax^2 + bx + c = 0$ , ହେଲେ  $x$  ର ମୂଲ୍ୟ ନିର୍ଣ୍ଣୟ କରିବାର ସୂତ୍ର ହେବ -

- (କ)  $x = \frac{b \pm \sqrt{b^2 - 4ac}}{2a}$  (ଖ)  $x = \frac{b \pm \sqrt{b^2 - 4ac}}{2}$   
(ଗ)  $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$  (ଘ)  $x = \frac{-b \pm \sqrt{b^2 - 4c}}{2a}$

୧୮. ଅଂଶ ପ୍ରତି ବାର୍ଷିକ ଆୟ ହେଲା -

- (କ)  $\frac{\text{ନିର୍ଦ୍ଧାରିତ ମୂଲ୍ୟ} \times 100}{\text{ଶତକଡ଼ା ଡିଭିଡେଣ୍ଡ ହାର}}$  (ଖ)  $\frac{\text{ଶତକଡ଼ା ଡିଭିଡେଣ୍ଡ ହାର}}{100} \times \text{ନିର୍ଦ୍ଧାରିତ ମୂଲ୍ୟ}$   
(ଗ)  $\frac{\text{ଡିଭିଡେଣ୍ଡ ହାର}}{100} \times \text{ନିର୍ଦ୍ଧାରିତ ମୂଲ୍ୟ}$  (ଘ)  $\frac{\text{ଡିଭିଡେଣ୍ଡ ହାର} \times 100}{\text{ନିର୍ଦ୍ଧାରିତ ମୂଲ୍ୟ}}$

୧୯. ଜଣେ ବ୍ୟକ୍ତି 400 ଟଙ୍କା ବିନି ଯୋଗକରି କୌଣସି ପ୍ରକଳ୍ପରୁ ଜିଣି କୋଟିଏ ଟଙ୍କା ଆୟ କରିବା ପାଇଁ ଯାତ୍ରା କରୁଥିଲେ ସେ କେତୋଟି ଅଂଶ ଜିଣିଥିଲେ ?

- (କ) 16 (ଖ) 20 (ଗ) 32 (ଘ) 50

୨୦. ପାଣ୍ଡୁକୁଳରେ ବ୍ୟାଙ୍କ ଡରପରୁ ପୁଅ ଜମା କରିବାର ତାରିଖ ହେଲା -

- (କ) ମେ 31 ଓ ନଭେମ୍ବର 30 (ଖ) ଜୁନ୍ 30 ଓ ଡିସେମ୍ବର 31  
(ଗ) ଏପ୍ରିଲ 30 ଓ ଅକ୍ଟୋବର 31 (ଘ) ମାର୍ଚ୍ଚ 31 ଓ ସେପ୍ଟେମ୍ବର 30

୨୧. ଉତ୍ତର ଚନ୍ଦ୍ରକୁଜର ପ୍ରତ୍ୟେକ କୋଣ -

- (କ) 0° ରୁ ଅଧିକ 90° ରୁ କମ୍ (ଖ) 0° ରୁ ଅଧିକ 180° ରୁ କମ୍  
(ଗ) 0° ରୁ ଅଧିକ 300° ରୁ କମ୍ (ଘ) 0° ରୁ ଅଧିକ 360° ରୁ କମ୍

୨୨. 'n' ବାହୁ ବିଶିଷ୍ଟ ଚକ୍ର କୁଟ୍ରି କ୍ଷେତ୍ରର ଆନ୍ତଃକୋଣର ସମଷ୍ଟି ଜାଣିବାର ନିୟମ ହେଲା -

- (କ) (n-1) 90 (ଖ) (n-2) 90 (ଗ) (n-1) 180 (ଘ) (n-2) 180

୨୩. ଏକାଦଶି ଓ ସମାନ୍ତର ରାଜତା ବିଶିଷ୍ଟ ଦୁଇଟି ତ୍ରିଭୁଜର କ୍ଷେତ୍ରଫଳ -

- (କ) ପରସ୍ପର ଅସମାନ (ଖ) ସମାନ (ଗ) ମନସ୍କର ମାନର କୌଣସି ସମ୍ପର୍କ ନାହିଁ (ଘ) କେବଳ ଗୋଟିଏ ପରିସୀମିତ ନାହିଁ ।

୨୪. ଦ୍ୱିକାଙ୍କର ମୂଲ୍ୟ ନିମ୍ନଲିଖିତ ମଧ୍ୟରୁ କେଉଁଟି ?

- (କ) 0.1 (ଖ) 0.2 (ଗ) 1.2 (ଘ) 3.4

୨୫. ୬୪ କୁ ଦ୍ୱିକ ସଂଖ୍ୟା ପଦ୍ଧତିରେ ରୂପାନ୍ତରଣ କଲେ ତାର ମୂଲ୍ୟ ହେବ -

- (କ) 10000 (ଖ) 100000 (ଗ) 1000000 (ଘ) 10000000

Full Signature : .....

Date : .....

POST - TEST  
Subject : Mathematics

ନିମ୍ନରେ କେତୋଟି ପ୍ରଶ୍ନ ସହିତ ତାହାର ସମାଧାନ ଉତ୍ତର ଦିଆଯାଇଅଛି । ଯେଉଁଟିକୁ ଠିକ୍ ଦେଖି ଯାହାକୁ ନା ବାମ ପାର୍ଶ୍ୱରେ ଠିକ୍ ଚିହ୍ନ (✓) ଦିଅନ୍ତୁ ।

୧. କୌଣସି ବୃତ୍ତୀୟ ବଳୟର ଅନ୍ତଃ ବ୍ୟାସାର୍ଦ୍ଧ ୩ ସେ.ମି. ଓ ବହିଃ ବ୍ୟାସାର୍ଦ୍ଧ ୪ ସେ.ମି. ହେଲେ ଏହାର କ୍ଷେତ୍ରଫଳ ହେବ -  
 (କ) ୧୧ ବର୍ଗ ସେ.ମି. (ଖ) ୩୩ ବର୍ଗ ସେ.ମି.  
 ✓ (ଗ) ୨୨ ବର୍ଗ ସେ.ମି. (ଘ) ୪୧ ବର୍ଗ ସେ.ମି.
୨. ଗୋଟିଏ ନିଜା ସିଲିଣ୍ଡରର ସମଗ୍ର ପୃଷ୍ଠତଳର କ୍ଷେତ୍ରଫଳ ହେବ -  
 (କ) ଭୂମିର କ୍ଷେତ୍ରଫଳ + ବକ୍ରତଳର କ୍ଷେତ୍ରଫଳ ✓ (ଖ) ଦୁଇ ଭୂମିର କ୍ଷେତ୍ରଫଳ + ବକ୍ରତଳର କ୍ଷେତ୍ରଫଳ  
 (ଗ) ଦୁଇ ଭୂମିର କ୍ଷେତ୍ରଫଳ + ଦୁଇ ବକ୍ରତଳର କ୍ଷେତ୍ରଫଳ (ଘ) ଆୟତ କ୍ଷେତ୍ରର କ୍ଷେତ୍ରଫଳ + ବକ୍ରତଳର କ୍ଷେତ୍ରଫଳ
୩. ଗୋଟିଏ ନିଜା କୋନ୍ର ଭୂମିର ବ୍ୟାସାର୍ଦ୍ଧ ୧୫ ସେ.ମି. ଓ ବକ୍ର ଉଚ୍ଚତା ୧୦ ସେ.ମି. ହେଲେ ଏହାର ବକ୍ରତଳର କ୍ଷେତ୍ରଫଳ ହେବ -  
 (କ) ୨୨୦ ବର୍ଗ ସେ.ମି. (ଖ) ୪୪୦ ବର୍ଗ ସେ.ମି.  
 (ଗ) ୪୪୦ ବର୍ଗ ସେ.ମି. (ଘ) ୮୮୦ ବର୍ଗ ସେ.ମି.
୪. ନିମ୍ନଲିଖିତ ମଧ୍ୟରୁ କେଉଁଟି ଗୁଣ୍ୟ ?  
 (କ) ସବୁଠାରୁ ଛୋଟ ଗୁଣ୍ୟ ୧୦ (ଖ) ଦୁଇଟି ସଂଖ୍ୟା ୩ ଓ ୫ର ଲ.ଗ. ୧୫  
 (ଗ) ଦୁଇଟି ଅସଂଖ୍ୟ ୩୫୫୫ ଓ ୫୫୫୫ (ଘ) ଦୁଇଟି ଗୁଣ୍ୟ ୩୫୫୫ ଓ ୫୫୫୫
୫. ଟେକ୍ ବ୍ୟବହାର କରିବାକୁ ହେଲେ ଆକାଶରେ ଅତି କମରେ ଉଡ଼ୁଥିବା ଟେକ୍ ଇମ୍ପାଣ୍ଟ୍ କିଛିଟି।  
 (କ) ୧୦୦ (ଖ) ୫୦୦ (ଗ) ୧୦୦୦ (ଘ) ୨୦୦
୬. କୌଣସି ପଥ ଭୂତଳ ବହିଃମୁଖ କୋଣର ସମଷ୍ଟି ପରିମାଣ ହେବ -  
 (କ)  $360^\circ$  (ଖ)  $540^\circ$  (ଗ)  $720^\circ$  (ଘ)  $900^\circ$
୭. ୧୬ ଜଣ ଲୋକ ୪୦ ଦିନରେ ପେଟି କାଟିଥିବା ଖେତ୍ର କରଟି, ତାହାକୁ ୨୦ ଜଣ ଲୋକ ୩୦ ଦିନରେ ଖେତ୍ର କରଟେ -  
 (କ) ୩୨ (ଖ) ୩୬ (ଗ) ୫୬ (ଘ) ୬୦
୮. ଭାଗକ୍ରିୟା ସଂପାଦନା ନ କରି  $x^4 + 2x^3 + 3x^2 + 4x + 5$  କୁ  $x + 2$  ଦ୍ୱାରା ଭାଗକଲେ ଭାଗଶେଷ ହେବ -  
 (କ) ୮ (ଖ) ୯ (ଗ) ୧୦ (ଘ) ୧୧
୯.  $2x^2 - 5x + 3 = 0$  ହେଲେ  $x$ ର ମୂଲ୍ୟ ହେବ -  
 (କ) ୧, ୨ (ଖ) ୨, ୩ (ଗ)  $3/2, 1$  (ଘ) ୨, ୩
୧୦. ୨୦ ଡେଗ୍ରୀ ଆନୁର ମୂଲ୍ୟ ହେବ -  
 (କ)  $\left(\frac{1800}{\pi}\right)^\circ$  (ଖ)  $\left(\frac{3600}{\pi}\right)^\circ$  (ଗ)  $\left(\frac{\pi}{90}\right)^\circ$  (ଘ)  $\left(\frac{\pi}{180}\right)^\circ$
୧୧.  $\log 2 = 0.3010$  ଏବଂ  $\log 3 = 0.4771$  ହେଲେ  $\log (256/6561)$ ର ମୂଲ୍ୟ ହେବ -  
 (କ) -1, 0.4088 (ଖ) -1, -0.4088 (ଗ) 2, 0.5912 (ଘ) 2, 0.5912
୧୨. ଦୁଇଟି ବୃତ୍ତ ପରସ୍ପର ଅନ୍ତଃସ୍ପର୍ଶ କଲେ କେନ୍ଦ୍ରଦ୍ୱୟ ମଧ୍ୟରେ ଦୂରତା ହେବ -  
 (କ) ବ୍ୟାସାର୍ଦ୍ଧର ପ୍ରଭେଦ (ଖ) ବ୍ୟାସାର୍ଦ୍ଧର ଯୋଗଫଳ  
 (ଗ) ବ୍ୟାସଦ୍ୱୟର ଯୋଗଫଳ (ଘ) ବ୍ୟାସଦ୍ୱୟର ଅନ୍ତର
୧୩. ଏକ ଗୋଲିକମର ଗୁଣାବଳୀ ନିମ୍ନଲିଖିତମାନଙ୍କ ମଧ୍ୟରୁ କେଉଁଟି ଏହାକୁ ଠିକ୍ -  
 (କ) କ୍ରମାବଳି ପର୍ଯ୍ୟାୟ ହୋଇଥିବ (ଖ) ସୀମିତ ପର୍ଯ୍ୟାୟ ହୋଇଥିବ  
 (ଗ) ଗୋଟିଏ ଦର୍ଶନୀ ହୋଇଥିବ (ଘ) କିଏବେ ଖିଲିରେ ହୋଇଥିବ
୧୪. ୨୧ ମିନିଟ୍ ମିଶ୍ରରେ ଲବଣାମ୍ଳ ଓ ଜଳର ଅନୁପାତ ୫:୨, ସେଥିରେ ଆଉ ଜଳର କିଛି ମିଶାଯାଇ ଫଳନ ମିଶ୍ରଣରେ ଲବଣାମ୍ଳ ଓ ଜଳର ଅନୁପାତ ୫:୩ ହେବ ।  
 (କ) ୨ (ଖ) ୩ (ଗ) ୪ (ଘ) ୫



୧୬. ଯଦି  $A = B = \{a, b, c\}$  ହୁଏ, ତେବେ ନିମ୍ନଲିଖିତ ସଂପର୍କମାନଙ୍କ ମଧ୍ୟରୁ କେଉଁଟି ଠିକ୍ ?  
 (କ)  $\{(a, a), (b, a), (c, a)\}$   
 (ଖ)  $\{(a, b), (a, c), (c, b)\}$   
 (ଗ)  $\{(a, a), (b, b)\}$   
 (ଘ)  $\{(a, b), (b, c)\}$
୧୭. ଯଦି  $3x + 2y - 6 = 0$  ତେବେ ଏହି ଲାଇନ୍  $x$  ଆକ୍ସିସକୁ ଅଭିସିନ୍ଦ୍ର କେତେ ଦୂରରେ ଛେଦ କରିବ -  
 (କ) 1 (ଖ) 2 (ଗ) 3 (ଘ) 4
୧୮. ଗୋଟିଏ ରାସ୍ତାର କର୍ଣ୍ଣଦୂର ଯଥାକ୍ରମେ 40 ସେ.ମି. ଓ 30 ସେ.ମି. ହେଲେ, ଏହାର ପ୍ରତ୍ୟେକ ଦାହର ଦୈର୍ଘ୍ୟ ହେବ -  
 (କ) 20 ସେ.ମି. (ଖ) 25 ସେ.ମି.  
 (ଗ) 30 ସେ.ମି. (ଘ) 35 ସେ.ମି.
୧୯. ଯଦି 4 ସେ.ମି., 6 ସେ.ମି. ଓ 8 ସେ.ମି. ର ତିନୋଟି ନିବା ଗୋଲକର ବ୍ୟାସାର୍ଦ୍ଧ ଆଉ ଗୋଟିଏ ନିବା ଗୋଲକର ପରିଧି କରାଯାଏ ଏବଂ ନୂତନ ନିବା ଗୋଲକର ବ୍ୟାସାର୍ଦ୍ଧର ଦୈର୍ଘ୍ୟ ଯଦି 9 ସେ.ମି. ହୁଏ, ତେବେ 'r' ମୂଲ୍ୟ ହେବ -  
 (କ) 1 ସେ.ମି. (ଖ) 2 ସେ.ମି.  
 (ଗ) 3 ସେ.ମି. (ଘ) 5 ସେ.ମି.
୨୦. ଯଦି ଶତକଡ଼ା ଚିଠିତେଜ ହାର 5 ହୁଏ ଓ ନିର୍ଦ୍ଧାରିତ ମୂଲ୍ୟ 500 ହୁଏ, ତେବେ ଧଂଶ ପ୍ରତି ବାର୍ଷିକ ଆୟର ମାଟ୍ରିମାଲ ହେବ -  
 (କ) 25 (ଖ) 250  
 (ଗ) 2500 (ଘ) 25000
୨୧. କୌଣସି ସଂଜ୍ଞାର ନିମ୍ନସୀମା 30 ଓ ଉର୍ଦ୍ଧ୍ବସୀମା 40 ହେଲେ, ସଂଜ୍ଞାର ମଧ୍ୟ ବୃଦ୍ଧ ହେବ -  
 (କ) 10 (ଖ) 35  
 (ଗ) 70 (ଘ) 140
୨୨.  $(-3, 2)$  ବିନ୍ଦୁଟି କେଉଁ କ୍ୱାଡ୍ରାଣ୍ଟରେ ଅବସ୍ଥିତ ?  
 (କ)  $Q_1$ ରେ ଅବସ୍ଥିତ (ଖ)  $Q_2$ ରେ ଅବସ୍ଥିତ  
 (ଗ)  $Q_3$ ରେ ଅବସ୍ଥିତ (ଘ)  $Q_4$ ରେ ଅବସ୍ଥିତ
୨୩.  $X^2 - 11X + 30 =$   
 (କ)  $(X - 6)(X - 5)$  (ଖ)  $(X + 6)(X - 5)$   
 (ଗ)  $(X - 6)(X + 5)$  (ଘ)  $(X + 6)(X + 5)$
୨୪. ଗୋଟିଏ ସମବାହୁ ତ୍ରିଭୁଜର ଦାହର ଦୈର୍ଘ୍ୟ 12 ସେ.ମି. ହେଲେ, ଏବଂ ତନ୍ମଧ୍ୟରେ ଏକ ଦୃଢ଼ ଅର୍ଦ୍ଧଲଗ୍ନ ହେଲେ ତା'ର କ୍ଷେତ୍ରଫଳ ହେବ -  
 (କ)  $6\pi$  (ଖ)  $9\pi$   
 (ଗ)  $12\pi$  (ଘ)  $16\pi$
୨୫. ଗୋଟିଏ ନିବା କୋନ୍ର କୃମିର ବ୍ୟାସାର୍ଦ୍ଧ 1 ସେ.ମି. ଓ ବକ୍ର ଉଚ୍ଚତା 'h' ସେ.ମି. ହେଲେ ଏହାର କ୍ଷେତ୍ରଫଳ ହେବ -  
 (କ)  $\pi r h$  (ଖ)  $1/2 \pi r^2 h$   
 (ଗ)  $\pi r^2 h$  (ଘ)  $1/3 \pi r^2 h$
୨୬. ବିନି ଯୋଗ ଅର୍ଥ ନଷ୍ଟର କାରଣରୁ କାର୍ଯ୍ୟକାରୀ -  
 (କ)  $\frac{\text{ଅଂଶ ସଂଖ୍ୟା}}{\text{ଅଂଶ ପ୍ରତିବିକ୍ରି ମୂଲ୍ୟ}}$  (ଖ)  $\frac{\text{ଅଂଶ ପ୍ରତି ବିକ୍ରି ମୂଲ୍ୟ}}{\text{ଅଂଶ ସଂଖ୍ୟା}}$   
 (ଗ) ଅଂଶ ସଂଖ୍ୟା  $\times$  ଅଂଶ ପ୍ରତି ବିକ୍ରି ମୂଲ୍ୟ (ଘ) ଅଂଶ ସଂଖ୍ୟା  $\times$  ଅଂଶ ପ୍ରତି ଲାଭ ମୂଲ୍ୟ

Full Signature :.....

Date :.....

## APPENDIX – F

**PROFORMA FOR EVALUATION OF CONTENT ENRICHMENT PROGRAMME UNDER SOPT ON  
PHYSICAL SCIENCE/ MATHEMATICS/ENGLISH/GEOGRAPHY OF  
SECONDARY SCHOOL TEACHERS**

**A PERSONAL DATA :**

- 1 Name of the Participant \_\_\_\_\_
- 2 Whether SC/ST/SEBC \_\_\_\_\_
- 3 Designation and Official address \_\_\_\_\_
- 4 Qualification \_\_\_\_\_
- 5 Experience \_\_\_\_\_
- 1 Venue of the Present Programme \_\_\_\_\_
- 2 Duration \_\_\_\_\_
- 3 Host Institution \_\_\_\_\_
- 1 (a) No of Training Programme attended by you prior to this programme \_\_\_\_\_
- (b) Duration : \_\_\_\_\_
- (c) Name of the Venue/Venues \_\_\_\_\_
- 2 (a) Is the present programme similar to previous training Programme attended by you ?  
To a great extent ☐ To some extent ☐ Not at all ☐
- (b) If not at all, , please specify the new features of the present programme
- (i) \_\_\_\_\_
- (ii) \_\_\_\_\_
- (iii) \_\_\_\_\_
- (iv) \_\_\_\_\_
3. Major Topics discussed during the present programme :

Sl.No	Topics
1	
2	
3.	
4.	
5.	
6.	
7.	

- 4 Are the discussed topics helpful in improving your content knowledge and skills in the subject and clarifying different concepts ideas and teaching techniques ? Put a tick (✓) mark in the appropriate box

Full ☐Partly ☐Not at all ☐

- 5 Out of the discussed topics which topics require further elaboration ?

(a)
(b)
(c)
(d)

- 6 Are the Resource Persons helpful in clarifying your doubts put a tick (✓) mark in the appropriate box ?

All of them ☐Some of them ☐None of them ☐

- 7 Whether the Resource Persons engage the class only through

(a) Theoretical Lecturers	
(b) Lecture and discussion	
(c) Discussion and Demonstration	
(d) Individual assignments	
(e) Group assignments	

- 8 Whether the resource persons allow you for adequate and free interaction or simply impose their own ideas and views

Always ☐Sometimes ☐Never ☐

- 9 Do you feel that the present orientation programme would be of much help for your day-to-day classroom transaction/practical exercises ?

To a great extent ☐To some extent ☐Not at all ☐

- 10 Should content orientation programmes be organised for the inservice teachers/Headmaster ?

Frequently ☐Sometimes ☐Not at all ☐

- 11 What suggestions do you have to make such programme more useful for teachers ?

**Signature of the Participant**

# APPENDIX - G

## SPECIAL ORIENTATION PROGRAMME FOR SCHOOL TEACHERS (SOPT)

### ACTION PLAN FOR SOPT (SECONDARY LEVEL) FOR THE YEAR, 2003

1. Dr. PMIASE, Sambalpur : Principal : Prof (Dr.) Sevak Tripathy, Ph : 0663 - 2412390 (O) 2411549 (R)

Sl. No	Name of the Programme	Venue	Date of Programme	Name of the Programme Coordinator
1	English	Town High School, Baragarh	23 04 2003 to 29 04 2003	Shri A. Sahoo
2	English	Dr PMIASE Sambalpur	23 04 2003 to 29 04 2003	Dr B K Nayak
3	Geography	Dr PMIASE, Sambalpur	24 04 2003 to 30 04 2003	Dr B M Ray Shri A C Biswal
4	Mathematics	GG High School Attabira	23 04 2003 to 29 04 2003	Shri P K Panda
5	English	G High School Jharsuguda	07 05 2003 to 13 05 2003	Dr C Sahoo
6	Physical Science	Dr PMIASE, Sambalpur	07 05 2003 to 13 05 2003	Dr P K Mishra
7	Mathematics	BR High School Belpahar	07 05 2003 to 13 05 2003	Shri P K Panda
8	Physical Science	Government High School Deogarh	07 05 2003 to 13 05 2003	Shri J C Naik
9	Geography	Town High School Baragarh	07 05 2003 to 13 05 2003	Dr N Barpanda Dr U P Khadanga
JULY TO SEPTEMBER, 2003				
10	Physical Science	Government High School, Hirakud	14 07 2003 to 20 07 2003	Shri J C Naik
11	Physical Science	Government High School, Rairakhol	18 07 2003 to 24 07 2003	Dr. P K Mishra
12	Mathematics	Dr PMIASE, Sambalpur	19 07 2003 to 25 07 2003	Shri P K Panda
13	English	Dr PMIASE, Sambalpur	20 07 2003 to 26 07 2003	Dr B K Nayak
14	Geography	Town High School, Baragarh	21 07 2003 to 27 07 2003	Dr B Barpanda
15	English	Government Girls' High School, Attabira	22 07 2003 to 28 07 2003	Smt. S K Mohanty
16	English	Government High School, Sohella	23 07 2003 to 29 07 2003	Shri A C Biswal
17	English	Rengali High School	01 08 2003 to 07 08 2003	Shri A Sahu
18	Mathematics	Government High School, Deogarh	04 08 2003 to 10 08 2003	Shri P K Panda
19	Physical Science	BR High School, Belpahar	05 08 2003 to 11 08 2003	Dr P K Mishra
20	English	Town High School, Baragarh	04 08 2003 to 10 08 2003	Shri A C Biswal
21	Physical Science	Government High School, Baragarh	05 09 2003 to 11 09 2003	Shri J C Naik
22	Mathematics	Barpali High School	07 09 2003 to 13 09 2003	Shri P K Panda
23	English	Government High School, Jharsuguda	08 09 2003 to 14 09 2003	Dr. B K Nayak

Sl. No.	Name of the Programme	Venue	Date of Programme	Name of the Programme Coordinator
24.	Geography	GG High School, Attabira	09.09.2003 to 15.09.2003	Dr. B.M. Ray
OCTOBER TO DECEMBER, 2003				
25.	English	Government High School, Rairakhol	13.10.2003 to 19.10.2003	Dr. C. Sahoo
26.	English	Town High School, Baragarh	15.10.2003 to 21.10.2003	Shri A. Sahu
27.	English	Dr. PMIASE, Sambalpur	01.11.2003 to 07.11.2003	Shri A. C. Biswal
28.	Physical Science	Government High School, Kuchinda	03.11.2003 to 09.11.2003	Shri J.C. Naik
29.	Geography	Government High School, Jharsuguda	04.11.2003 to 10.11.2003	Dr. B.M. Ray
30.	English	Government High School, Deogarh	05.11.2003 to 11.11.2003	Dr. C. Sahoo
31.	Geography	Rairakhol Government High School	06.11.2003 to 12.11.2003	Dr. U.P. Khadanga
32.	Mathematics	Boys High School, Padmapur	08.11.2003 to 14.11.2003	Shri P.K. Panda
33.	Geography	Dr. PMIASE, Sambalpur	01.12.2003 to 07.12.2003	Dr. B.M. Ray
34.	Physical Science	Dr. PMIASE, Sambalpur	02.12.2003 to 08.12.2003	Shri J.C. Naik
35.	Physical Science	RB High School, Padmapur	03.12.2003 to 09.12.2003	Dr. P.K. Mishra
36.	English	Hirakud High School	05.12.2003 to 11.12.2003	Smt. N. Guru
JANUARY TO MARCH, 2004				
37.	English	Rengali High School, Rengali	05.01.2004 to 11.01.2004	Smt. S.K. Mohanty
38.	Geography	Government High School, Barpali	06.01.2004 to 12.01.2004	Dr. U.P. Khadanga
39.	Physical Science	Dr. PMIASE, Sambalpur	07.01.2004 to 13.01.2004	Dr. P.K. Mishra
40.	English	Dr. PMIASE, Sambalpur	08.01.2004 to 14.01.2004	Smt. N. Guru
41.	English	Dr. PMIASE, Sambalpur	20.01.2004 to 26.01.2004	Shri A. Sahu
42.	Geography	Government High School, Deogarh	02.02.2004 to 08.02.2004	Dr. N. Barpanda
43.	English	BR High School, Belpahar	10.02.2004 to 16.02.2004	Dr. B.K. Nayak
44.	English	Dr. PMIASE, Sambalpur	03.03.2004 to 09.03.2004	Dr. C. Sahoo
45.	Geography	Dr. PMIASE, Sambalpur	07.03.2004 to 12.03.2004	Dr. U.P. Khadanga
46.	English	Dr. PMIASE, Sambalpur	15.03.2004 to 21.03.2004	Smt. S.K. Mohanty
47.	Geography	Dr. PMIASE, Sambalpur	17.03.2004 to 23.03.2004	Dr. N. Barpanda
48.	English	Government High School, Rairakhol	16.03.2004 to 22.03.2004	Smt. N. Guru

2. RCET, Rourkela : Principal : Dr. M.K. Pathy, Ph : 0662<sup>1</sup> – 600804 (O)

Sl. No.	Name of the Programme	Venue	Date of Programme	Name of the Programme Coordinator
JULY TO SEPTEMBER, 2003				
1.	Physical Science	RCET, Rourkela	16.07.2003 to 22.07.2003	Mrs S K Naik
2.	Geography	Rasthya Vidyalaya, Raigangpur	24.07.2003 to 30.07.2003	Dr T K Gaya
3.	English	RCET, Rourkela	06.08.2003 to 12.08.2003	Dr K Dash
4.	Mathematics	BS High School, Sundargarh	21.08.2003 to 27.08.2003	Dr G. Mohapatra
5.	Geography	Government Girls' High School, Sundargarh	28.08.2003 to 03.09.2003	Dr. T K Gaya
6.	English	BS High School, Sundargarh	04.09.2003 to 10.09.2003	Dr K Dash
7.	Mathematics	RCET, Rourkela	12.09.2003 to 18.09.2003	Dr. G. Mohapatra
8.	Physical Science	RDD High School, Bonai	23.09.2003 to 29.09.2003	Dr. K. Dash
OCTOBER TO DECEMBER, 2003				
9.	English	RCET, Rourkela	15.10.2003 to 21.10.2003	Dr. I. Patel
10.	Mathematics	Government High School, Bargaon	23.10.2003 to 29.10.2003	Dr. G. Mohapatra
11.	Physical Science	Government Girls' High School, Sundargarh	01.11.2003 to 07.11.2003	Smt. S K Naik
12.	Geography	RCET, Rourkela	19.11.2003 to 25.11.2003	Dr T K Gaya
13.	Physical Science	DAV High School, Vedyash	27.11.2003	Mrs. S. K Naik
14.	Mathematics	RCET, Rourkela	05.12.2003 to 11.12.2003	Dr G Mohapatra
15.	Geography	RCET, Rourkela	16.12.2003 to 23.12.2003	Dr. T K Gaya
JANUARY TO MARCH, 2004				
16.	English	R. Vdyalaya, Raigangpur	06.01.2004 to 12.01.2004	Dr I Patel
17.	Mathematics	RCET, Rourkela	04.02.2004 to 10.02.2004	Dr G Mohapatra
18.	Geography	RCET, Rourkela	12.02.2004 to 18.02.2004	Dr T K. Gaya

3. CTE, Balasore : Principal : Dr. A.N. Mishra, Ph : 06782 - 262523

Sl. No.	Name of the Programme	Venue	Date of Programme	Name of the Programme Coordinator
1.	General Science	CTE, Balasore	21.04.2003 to 27.04.2003	Dr. A. Mishra
2.	Mathematics	Bahanga High School	01.05.2003 to 07.05.2003	Dr. A. Mishra
3.	Geography	CTE, Balasore	02.07.2003 to 08.07.2003	Shri K.C. Behera
4.	English	Town High School, Jaleswar	09.07.2003 to 15.07.2003	Dr. B. Sahu
5.	Mathematics	Bhadrak High School	17.07.2003 to 23.07.2003	Dr. A. Mishra
6.	English	Bhadrak High School	04.08.2003 to 10.08.2003	Dr. B. Sahu
7.	General Science	Jaleswar High School	20.08.2003 to 26.08.2003	Dr. A. Mishra
8.	Geography	CTE, Balasore	04.09.2003 to 10.09.2003	Shri K.C. Behera
9.	General Science	Jamunbadin School	22.09.2003 to 28.09.2003	Dr. A. Mishra
10.	Geography	KC High School, Nilgiri	20.10.2003 to 26.10.2003	Shri K.C. Behera
11.	Geography	DTLK, Chandaneswar	03.11.2003 to 09.11.2003	Shri K.C. Behera
12.	Mathematics	DTLK, Chandaneswar	12.11.2003 to 18.11.2003	Dr. A. Mishra

4. **AATC, Fakirpur :** Principal : Dr. Narayan Barik, Ph : 06731 – 220438 (O)

Sl No	Name of the Programme	Venue	Date of Programme	Name of the Programme Coordinator
1.	Physical Science		July, 2003	
2.	Mathematics		July, 2003	
3	English		August, 2003	
4.	Geography		August, 2003	
5.	Physical Science		September, 2003	
6.	Geography		September, 2003	
7.	Mathematics		October, 2003	
8.	English		October, 2003	
9.	Physical Science		November, 2003	--
10.	Mathematics		November, 2003	
11.	English		November, 2003	
12.	Physical Science		December, 2003	
13.	Geography		December, 2003	
14.	Mathematics		January, 2004	
15.	English		January, 2004	
16.	Geography		January, 2004	
17.	English		February 2004	
18.	Geography		February, 2004	
19.	Physical Science		March 2004	
20.	Mathematics		March, 2004	



5. DAV CTE, Koraput : Principal : Dr. D. Brahma, Ph 06852 – 251379 (O)

Sl. No.	Name of the Programme	Venue	Date of Programme	Name of the Programme Coordinator
1.	Physical Science	DAV CTE, Koraput	July, 2003	Dr. D. Sarangi
2.	Geography	DAV CTE, Koraput	August, 2003	Dr. K. Nayak
3.	English	DAV CTE, Koraput	August, 2003	Shri R.L. Nandi
4.	Mathematics	DAV CTE, Koraput	August, 2003	Shri S.K. Dey
5.	Physical Science	DIET, Jeypore	September, 2003	Dr. D. Sarangi
6.	Geography	DIET, Jeypore	September, 2003	Dr. K. Nayak
7.	Mathematics	DIET, Jeypore	October, 2003	Shri S.K. Dey
8.	English	DIET, Jeypore	January, 2004	Shri R.L. Nandi

6. KTC, Bhawanipatna : Principal : Dr. B.B. Panda, Ph : 06670 – 231104

Sl. No.	Name of the Programme	Venue	Date of Programme	Name of the Programme Coordinator
1.	Geography	KTC, Bhawanipatna	04.08.2003 to 09.08.2003	Shri Tapan Ku Das
2.	Physical Science	KTC, Bhawanipatna	08.09.2003 to 13.09.2003	Shri Tapan Ku Das
3.	Mathematics	KTC, Bhawanipatna	15.10.2003 to 21.10.2003	Shri Tapan Ku Das
4.	English	KTC, Bhawanipatna	18.11.2003 to 24.11.2003	Shri Tapan Ku Das
5.	Geography	KTC, Bhawanipatna	08.12.2003 to 13.12.2003	Shri Tapan Ku Das
6.	English	KTC, Bhawanipatna	06.01.2004 to 12.01.2004	Shri Tapan Ku Das

7. CTE, Balangir : Principal : Shri Sanatan Panda, Ph : 06652 – 232653 (O)

Sl. No.	Name of the Programme	Venue	Date of Programme	Name of the Programme Coordinator
1.	Science		July, 2003	
2	Mathematics		July, 2003	
3	Geography		July, 2003	
4.	English		August, 2003	
5.	Geography		August, 2003	
6.	Science		August, 2003	
7.	Mathematics		September, 2003	
8.	English		September, 2003	
9.	Mathematics		October, 2003	
10.	Science		November, 2003	
11.	Geography		December, 2003	
12.	English		February, 2004	

8. NKC CTE, Angul : Principal : Dr Chaitanya Sahoo, Ph : 06764 – 230308 (O)

Sl No.	Name of the Programme	Venue	Date of Programme	Name of the Coordinator
1.	Geography	NKC CTE, Angul	January, 2004	Dr B C Swain
2.	Mathematics	NKC CTE Angul	February, 2004	Shri A Behera
3.	English	NKC CTE, Angul	February, 2004	Dr G C Biswal
4.	Geography	NKC CTE Angul	February, 2004	Dr B C Swain
5.	English	NKC CTE, Angul	February, 2004	Dr B C Biswal
6.	Science	NKC CTE, Angul	January, 2004	Science Teacher
7.	Geography-English	NKC CTE, Angul	March, 2004	Dr B C Swain
8	Science	NKC CTE, Angul	March, 2004	Science Teacher
9	Mathematics	NKC CTE, Angul	March, 2004	Science Teacher
10.	Science	NKC CTE, Angul		Science Teacher

9. KSUB CTE, Bhanjanagar : Principal : Dr. R.K. Rath, Ph · 06821 – 241260 (O)

Sl. No.	Name of the Programme	Venue	Date of Program.....e	Name of the Programme Coordinator
1.	English			
2.	Geography		02 07 2003 to 08 07 2003	
3.	Mathematics		23 07 2003 to 29 07 2003	
4.	Physical Science		01 08 2003 to 07.08.2003	
5.	English		21 08 2003 to 27 08 2003	
6.	Oriya		09 09 2003 to 15 09 2003	
7.	Geography		17 09 2003 to 23 09 2003	
8.	Mathematics		15 10 2003 to 21 10 2003	
9.	Physical Science		11 11 2003 to 17 11 2003	
10.	Oriya		18 11 2003 to 24 11 2003	
11.	English		05 12 2003 to 11 12 2003	
12.	Biological Science		12 12 2003 to 18 12 2003	
13.	Geography		03 01 2004 to 09 01 2004	
14.	Mathematics		15 01 2004 to 21 01 2004	
15.	Biological Science		18 02 2004 to 24 02 2004	

10. UG B.Ed. College, Baripada : Principal : Dr N Padhy, Ph - 06792 - 253948 (O)

Sl. No.	Name of the Programme	Venue	Date of Programme	Name of the Programme Coordinator
1.	Mathematics and English		July, 2003	
2.	Physical Science and Geography		August, 2003	
3.	Physical Science and Mathematics		September, 2003	
4.	English		October, 2003	
5.	Geography and Physical Science	---	November, 2003	
6.	Mathematics and English		December, 2003	
7.	Geography and English		January, 2004	
8.	Mathematics and Physical Science		February, 2004	
9.	Geography		March, 2004	

11. DPIASE, Berhampur : Principal : Shri K. Nayak, Ph : 0680 – 248481 (O)

Sl. No.	Name of the Programme	Venue	Date of Programme	Name of the Programme Coordinator
1.	Physical Science	DPIASE, Berhampur	July, 2003	Dr P. Hota
2.	English	DPIASE, Berhampur	July, 2003	Dr. B.C. Mishra
3.	Mathematics	STS, Parlakhemundi	August, 2003	Shri S.G Gouda
4.	Geography	STS, Parlakhemundi	August, 2003	Dr. L. L. Bisoi
5.	Geography	DPIASE, Berhampur	September, 2003	Dr. P. Hota
6.	Physical Science	DPIASE, Berhampur	September, 2003	Dr. P. Hota
7.	English	GCD High School, Rayagada	October, 2003	Shri K.C. Nayak
8.	Mathematics	GCD High School, Rayagada	October, 2003	Shri S G Gouda
9	Physical Science	DPIASE, Berhampur	November, 2003	Dr. P. Hota
10.	Geography	DPIASE, Berhampur	November, 2003	Dr. L. L. Bisoi
11.	Geography	DPIASE, Berhampur	December, 2003	Dr. P. Hota
12.	Mathematics	DPIASE, Berhampur	December, 2003	Shri U N Sahu
13.	Physical Science	DPIASE, Berhampur	January, 2004	Dr P Hota
14.	English	DPIASE, Berhampur	January, 2004	Dr. B C Mishra
15.	English	DPIASE, Berhampur	February, 2004	Shri K C Nayak
16.	Mathematics	DPIASE, Berhampur	February, 2004	Shri U N Sahu

12. NDW CTE, Bhubaneswar : Principal : Dr (Mrs.) Bharat Mohapatra, Ph : 0674 - 2405331 (O)

Sl. No.	Name of the Programme	Venue	Date of Programme	Name of the Programme Coordinator
1.	Mathematics	NDW CTE, Bhubaneswar	05.04.2003 to 11.04.2003	Sangita Patnaik
2.	English	NDW CTE, Bhubaneswar	05.04.2003 to 11.04.2003	S Baral
3.	Physical Science	Nayagath	05.04.2003 to 11.04.2003	Preetlata Jena
4.	Geography	Khurda	06.04.2003 to 12.04.2003	Arpita Sabat
5.	Mathematics	Nayagath	11.07.2003 to 17.07.2003	Sangita Patnaik
6.	Geography	NDW CTE, Bhubaneswar	11.07.2003 to 17.07.2003	Kalpalata Patn / Draupadi Patel
7.	Physical Science	NDW CTE, Bhubaneswar	14.07.2003 to 20.07.2003	B Tripathy / Narayani Bahidar
8.	English	Nimapara	14.07.2003 to 20.07.2003	Smita Mishra / Gayatri Mohanty
9.	Physical Science	Nayagath	August, 2003	Preetlata Jena / Bahidar N
10.	English	Nayagath	August, 2003	S Samal / A Mishra
11.	Mathematics		August, 2003	S Patnaik / Nilbedita Nayak
12.	Geography		August, 2003	Kalpalata Patn / Baral S
13.	Mathematics		September, 2003	S Patnaik / N Nayak
14.	English		September, 2003	S Mishra / A Mishra
15.	Geography		September, 2003	A Sabath / S Panda
16.	Physical Science		October, 2003	B Tripathy / P Hota
17.	English		October, 2003	Gayatri Mohanty / P Hota

Sl. No.	Name of the Programme	Venue	Date of Programme	Name of the Programme Coordinator
18.	Physical Science		October, 2003	B. Tripathy / A. Bahindar
19.	Geography		October, 2003	Kapalata Patra / D. Patel
20.	Mathematics		November, 2003	S. Pattnaik / N. Nayak
21.	English		November, 2003	S. Baral / G. Mohanty
22.	Geography		November, 2003	K. Patra / D. Patel
23.	Physical Science		November, 2003	P. Jena / K. Patra
24.	Physical Science		December, 2003	B. Tripathy / P. Jena
25.	English		December, 2003	S. Mishra / G. Mohanty
26.	Geography		December, 2003	K. Patra / D. Patel
27.	Mathematics		January, 2004	S. Pattnaik / N. Nayak
28.	English		January, 2004	S. Mishra / A. Mishra

## 13. RNIASE, Cuttack : Principal : Prof (Dr) S M Pany, Ph : 0671 – 2622659 (O)

Sl. No.	Name of the Programme	Venue	Date of Programme	Name of the Programme Coordinator
1.	English	RNIASE, Cuttack	05.04.2003 to 11.04.2003	
2.	English	RNIASE, Cuttack	06.04.2003 to 12.04.2003	
3.	Mathematics	RNIASE, Cuttack	16.04.2003 to 22.04.2003	
4.	Mathematics	RNIASE, Cuttack	17.04.2003 to 23.04.2003	
5.	Physical Science	RNIASE, Cuttack	25.04.2003 to 01.05.2003	
6.	Physical Science	RNIASE, Cuttack	26.04.2003 to 02.05.2003	
7.	English	RNIASE, Cuttack	06.05.2003 to 12.05.2003	
8.	Physical Science	Basudev High School, Gopepur, Badamba	06.05.2003 to 12.05.2003	
9.	English	RNIASE, Cuttack	07.05.2003 to 13.05.2003	
10.	Geography	RNIASE, Cuttack	02.07.2003 to 08.07.2003	
11.	Geography	RNIASE, Cuttack	08.07.2003 to 09.07.2003	
12.	English	RNIASE, Cuttack	11.07.2003 to 17.07.2003	
13.	English	RNIASE, Cuttack	12.07.2003 to 18.07.2003	
14.	Mathematics	RNIASE, Cuttack	22.07.2003 to 28.07.2003	
15.	Mathematics	RNIASE, Cuttack	23.07.2003 to 29.07.2003	
16.	Physical Science	RNIASE, Cuttack	04.08.2003 to 07.08.2003	
17.	Physical Science	RNIASE, Cuttack	02.08.2003 to 08.08.2003	
18.	English	RNIASE, Cuttack	20.08.2003 to 26.08.2003	
19.	English	RNIASE, Cuttack	21.08.2003 to 27.08.2003	
20.	Geography	RNIASE, Cuttack	03.09.2003 to 09.09.2003	
21.	Geography	RNIASE, Cuttack	04.09.2003 to 10.09.2003	
22.	Physical Science	RNIASE, Cuttack	12.09.2003 to 18.09.2003	
23.	Physical Science	RNIASE, Cuttack	13.09.2003 to 19.09.2003	



Sl. No.	Name of the Programme	Venue	Date of Programme	Name of the Programme Coordinator
24.	Mathematics	RNIASE, Cuttack	15 10 2003 to 21 10 2003	National Institute of Technology Cuttack
25.	Mathematics	RNIASE, Cuttack	16 10 2003 to 22 10 2003	
26.	Geography	RNIASE, Cuttack	17 10 2003 to 23 10 2003	
27.	Geography	RNIASE, Cuttack	18 10 2003 to 24 10 2003	
28.	English	RNIASE, Cuttack	18 11 2003 to 24.11 2003	
29.	Physical Science	RNIASE, Cuttack	28 11 2003 to 04 12 2003	
30.	Physical Science	RNIASE, Cuttack	29 11 2003 to 05 12 2003	
31.	English	RNIASE, Cuttack	09 12 2003 to 15 12 2003	
32.	English	RNIASE, Cuttack	10 12 2003 to 16 12 2003	
33.	Geography	RNIASE, Cuttack	06 01 2004 to 12.01 2004	
34.	Geography	RNIASE, Cuttack	07 01 2004 to 13 01 2004	
35.	Physical Science	RNIASE, Cuttack	16 01 2004 to 22 01 2004	
36.	Physical Science	RNIASE, Cuttack	17 01 2004 to 23 01 2004	
37.	English	RNIASE, Cuttack	03 02 2004 to 09 02 2004	
38.	English	RNIASE, Cuttack	04 02 2004 to 10 02 2004	
39.	Mathematics	RNIASE, Cuttack	17 02 2004 to 23 02 2004	
40.	Mathematics	RNIASE, Cuttack	18 02 2004 to 24 02 2004	
41.	Physical Science	RNIASE, Cuttack	02 03 2004 to 08 03 2004	
42.	Physical Science	RNIASE, Cuttack	03 03 2004 to 09 03 2004	
43.	Geography	RNIASE, Cuttack	11 03 2004 to 17 03 2004	
44.	Geography	RNIASE, Cuttack	12 03 2004 to 18 03 2004	